Harmonised
Ancillary Services
2011/2012

Recommendations Paper

2nd August 2011

EirGrid

SONi
System Operator for Northern Ireland

1. EXECUTIVE SUMMARY

Taking cognisance of the scope[1] set out by the RAs, comments received from industry in the previous HAS consultation paper[2] and the significant increase in Dispatch Balancing Costs incurred during this existing tariff year the TSOs published separate consultation papers for HAS[3] and OSC[4] on 18th April 2011. The TSOs received comments from seventeen (17) respondents on this consultation paper and having reviewed the responses the TSOs have made a number of recommendations based on these comments:

1. For the upcoming tariff period running from the 1st October 2011 to the 30th September 2012, the TSOs proposed to maintain the current approved schedule of services;
2. A new short term service Reduced Time to Synchronise is introduced for the 2011/2012 tariff year. This will be contracted with units which can offer this service on a limited basis where it is determined that it offers both a system benefit and saving. This service will be reviewed during the tariff year to determine its appropriateness and may be revised depending on the outcome of this review;
3. A new short term service Flexible Multimode Operation is introduced for the 2011/2012 tariff year. This will be contracted with units which can offer this service on a limited basis where it is determined that it offers both a system benefit and saving. This service will be reviewed during the tariff year to determine its appropriateness and may be revised depending on the outcome of this review;
4. A new short term service Lower Minimum Generation is introduced for the 2011/2012 tariff year. This will be contracted with units which can offer this service on a limited basis where it is determined that it offers both a system benefit and saving. This service will be reviewed during the tariff year to determine its appropriateness and may be revised depending on the outcome of this review;
5. A new service Synchronous Compensation is introduced from the 2011/2012 tariff year;
6. The AS payment rates and charges remain unchanged for the 2011/2012 tariff year, other than those that change as a result of the final exchange rate;
7. The reserve outturn of the AS Allowance is rebalanced at the end of the 2011/2012 tariff year. The reactive power outturn will not be rebalanced as the utilisation of this service depends on local system requirements;
8. The exchange rate methodology is aligned to that utilised in the SEM from the 2011 calendar year; and
9. A monthly report is published detailing AS outturn for the various categories of reserve, reactive power and black start.

1 (SEM-10-42) "Harmonised All-Island Ancillary Services Rates and Other System Charges; Information Note to Service Providers" 29th June 2010, available at www.allislandproject.org

2 "Harmonised Ancillary Services; Consultation" 9th July 2010, available at www.EirGrid.com and www.soni.ltd.uk

3 "Harmonised Ancillary Services; Consultation" 18th April 2011, available at www.EirGrid.com and www.soni.ltd.uk

4 "Harmonised Other System Charges; Consultation" 18th April 2011, available at www.EirGrid.com and www.soni.ltd.uk

Significant work has been undertaken by the TSOs on the changing needs of the power system and this work will feed into the future review of the design of Ancillary Services[5]. The TSOs anticipate a number of industry briefings over the next 18 months and will be ensuring that the RAs and the industry are updated regularly regarding the status of this future review of the design of Ancillary Services.

ABBREVIATIONS

AS	Ancillary Services
CCGT	Combined Cycle Gas Turbine
DBC	Dispatch Balancing Costs
HAS	Harmonised Ancillary Services
OCGT	Open Cycle Gas Turbine
OSC	Other System Charges
RAs	Regulatory Authorities (CER & NIAUR)
SEM	Single Electricity Market
SMP	System Marginal Price
SONI	System Operator of Northern Ireland
TSO	Transmission System Operator

5 Building on the TSOs' report "Facilitation of Renewables Studies" the TSOs submitted in May 2011 a programme for a secure, sustainable power system to the RAs. This includes enhanced operational policies which may entail a review of Ancillary Services.

2. INTRODUCTION

The aim of this paper is to recommend to the Regulatory Authorities (RAs) in Ireland and Northern Ireland the proposed rates and changes for the 2011/2012 tariff year, based on comments received by the Transmission System Operators (TSOs) on the Harmonised Ancillary Services Consultation paper[6].

On the 29th June 2010 the RAs in Ireland and Northern Ireland published an information note to service providers on Harmonised Ancillary Services (HAS) and Other System Charges (OSC)[7]. This information note set out, amongst other things, the scope for the second annual review of HAS which was to be commenced after the first annual review. In summary consideration was to be given to the following:

- Consideration of new services;
- Review the size of the AS pot in light of any new services; and
- Movement to an All Island pot.

Taking cognisance of the scope set out by the RAs, comments received from industry in the previous HAS consultation paper[8] and the significant increase in Dispatch Balancing Costs incurred during this existing tariff year the TSOs published separate consultation papers for HAS[1] and OSC[9] on 18th April 2011.

For the upcoming tariff period running from the 1st October 2011 to the 30th September 2012, the TSOs proposed to maintain the current approved schedule of services and rates. The TSOs further proposed to introduce a number of new AS services, on a limited basis, to help mitigate against the significant increase in Dispatch Balancing Costs. These proposed services included a reduced time to synchronisation, flexible multimode operation, lower minimum generation and synchronous compensation. It is intended that the design of these services will be updated further over time. The movement to a single AS allowance was addressed in this paper, as were options for changing the mechanism for the setting of the exchange rate for the next tariff year. Finally the TSOs proposed that a report is published on a monthly basis which states the outturn for each category of reserve, reactive power and black start for a particular month.

Following a review of comments on the HAS consultation paper the TSOs are now making these recommendations to the RAs. The TSOs will then publish a revised AS Statement of Payment and Charges for the 2011/2012 tariff period.

6 "Harmonised Ancillary Services; Consultation" 18th April 2011, available at www.EirGrid.com and www.soni.ltd.uk

7 (SEM-10-42) "Harmonised All-Island Ancillary Services Rates and Other System Charges; Information Note to Service Providers" 29th June 2010, available at www.allislandproject.org

8 "Harmonised Other System Charges; Consultation" 9th July, available at www.EirGrid.com and www.soni.ltd.uk

9 "Harmonised Other System Charges; Consultation" 18th April 2011, available at www.EirGrid.com and www.soni.ltd.uk

The TSOs received responses from the following parties:

Party	**Abbreviation**
AES Kilroot Power Ltd & AES Ballylumford Ltd	AES
Bord Gáis Energy	BGE
Bord Na Móna PowerGen	BnM
Endesa Ireland	Endesa
ESB Energy International	ESBI
ESB Power Generation	ESBPG
Energy Generation Infrastructure	EGI
IWEA	IWEA
NIE Energy Limited Power Procurement Business	PPB
Synergen	Synergen
The Consumer Council	TCC
Tynagh Energy Limited	TEL
Viridian Power & Energy Limited	VPE
Wärtsilä	Wärtsilä

Three confidential responses were received to this consultation paper. The responses which were not marked confidential can be found attached to this recommendations paper. The TSOs welcome the high number of responses to the consultation and will be in discussions with each of the respondents in due course.

3. ANCILLARY SERVICES CONSULTATION

3.1. NEW SERVICES

3.1.1. Introduction

During the 2010/2011 tariff year the TSOs investigated factors to mitigate against high constraint costs. One area of mitigation was to assess a number of short term AS services which would provide flexibility in operating the power system thereby reducing costs. The proposed short term services identified in the consultation paper were Reduced Time to Synchronise, Flexible Multimode Operation and Lower Minimum Generation.

The TSOs proposed to procure these on a bilateral basis for the 2011/2012 tariff year with service providers that could offer these services at the lowest cost and which offered the greatest system value. The TSOs further proposed that after carrying out a review of the benefits of these services to the power system and Dispatch Balancing Costs that the TSOs would consider implementing these as harmonised services from the 2012/2013 tariff year. The review would focus on assessing whether the services offered the intended flexibility and system savings.

3.1.2. Respondents Comments

Five comments (AES, BGE, ESBI, ESBPG, 1 confidential) were received in relation to how the proposed new services did not offer the long term certainty required by both existing and new generation to invest in being able to offer these services. The absence of rates, as noted in one of the responses, makes it impossible in its view to properly assess the costs and benefits.

Three responses (PPB, Synergen, Tynagh) were received that stated that the payment for these new services should be set such that they are fully cost reflective. One of the responses listed a number of additional costs which may be incurred by a service provide in offering the new services such as testing, capital investment costs, legal and commercial costs, upgrading existing settlement systems, opportunity costs and additional commercial and operational risks. One of these responses also suggested that any rates agreed on a bilateral basis should be published.

Two responses (Synergen, 1 confidential) state that the services should be awarded in a non discriminatory basis and that providers of the same service should be rewarded on the same cumulative basis.

One response (AES) was received that the new services need to be made more flexible so that generating units have an appropriate mechanism to terminate or amend their AS Agreement. One other response was similar in nature and suggests that all agreements should be voluntary and should not lead to the development of new Grid Code requirements.

A point is made by one submission (BGE) that they believe the new AS are being introduced without the full implications of their impact on SEM being considered. An example of one of these implications given in this submission is the higher carbon output which may arise due to these services.

Finally one respondent (VPE) believes that an evolutionary approach to the development of AS, rather than a revolutionary approach is required. They believe that new AS should focus on rewarding service providers for the system value they can provide and believe that the new services proposed by the TSOs meet this approach.

3.1.3. TSOs' Response

In the consultation paper the TSOs described how these new services were required to mitigate against the significant increase in Dispatch Balancing Costs and to help offer increased operational flexibility. The TSOs proposed that these new services would be introduced for the 2011/2012 tariff year on a bilateral basis. This is because existing generating units can offer the same service by different technological means, which results in each generating unit incurring unique incremental costs and having specific technical capabilities and limitations whilst offering these services. This approach was also established from discussions the TSOs had with all service providers during the 2010/2011 tariff year.

During the 2011/2012 tariff year the TSOs proposed to continue to review the system value offered by these services and to endeavour to try and develop a harmonised rate for all generating units or a generator type harmonised rate for the 2012/2013 tariff year (i.e. a rate for CCGTs, rate for OCGTs, rate for thermal plant, etc).

The services were not intended to be introduced as long term products in light of the future review of the design of Ancillary Services being carried out by the TSOs. The proposed short term services were intended to help reduce Dispatch Balancing Costs and offer increased operational flexibility.

Finally the TSOs would like to clarify that these services will not effect the SEM as this is outside the remit of AS.

3.1.4. TSOs' Recommendation

The TSOs recommend that where appropriate they will enter into bilateral contracts for these new services with the service providers on a unit specific basis. It is the TSOs intent that these are procured to provide the best value to both the system and end consumer.

3.2. REDUCED TIME TO SYNCHRONISE

3.2.1. Introduction

Time to Synchronise (from instruction) sets out the minimum notification times which the TSOs must give a generating unit to synchronise to the transmission system, depending on its warmth state. Many generating units have the technical capability to have a lower Time to Synchronise than required by the Grid Code.

Operationally it would be beneficial to reduce this timeframe as much as technically possible in order to have greater flexibility, to reduce the potential of carrying unnecessary generation and in order to reduce costs. Currently certain units have long notification times and thus must be dispatched in advance of real time in anticipation of wind, demand and interconnector changes. This leads to higher costs on the system. As forecasting errors reduce closer to real time the shorter notification time allows a more accurate unit commitment with the a resulting decrease in constraints costs.

The TSOs propose that the incentive to reduce the Time to Synchronisation should be based on an improvement from the generating unit's Grid Code minimum requirement. This service would be paid based on utilisation and a charge would be levied in the event the service was not delivered when called on. The payment would be unit specific and would cover the incremental cost of providing the service in addition to an incentive payment being made to the service provider.

The TSOs proposed to keep under review this service during the new tariff year to determine its appropriateness for the long term and how the design of this should be structured.

3.2.2. Respondents Comments

Comments in relation to the proposed unit specific payment were received by seven respondents (AES, BnM, Endesa, ESBPG, EGI, 2 confidential). Three respondents commented that any plant which offers an improved reduced time to synchronise on Grid Code should be rewarded. One of the respondents believes that the remuneration should cover the up front costs associated with providing the service and that remuneration should be made based on the availablility of the service in addition to the incremental costs incurred. One comment is made on how any unit specific payment must be transparent while one comment further proposes that if any unit specific rate is to be made then an auction should be held for this service.

Three comments (BGE, Endesa, ESBI) were received that the non-payment for failure to provide the service. In addition to a failure to synchronise dispatch instruction is too onerous and believe that this is a disincentive towards offering the service.

The absence of specific rates and the certainty of the service being utilised is made in two responses (AES, BGE). These responses believe that without these they cannot properly analyse the service.

Two respondents (AES, BGE) note that such a service increases the risks to the service provider. One of these responses gives examples of increased cycling due to the new service and that the commodity and capacity risk also increases.

3.2.3. TSOs' Response

Service providers are required to declare their Time to Synchronise based on the actual performance of the unit as required per the Grid Code. Certain generators can readily improve on this parameter, however this may involve the service provider having to incur additional costs which would not necessarily be recovered through the market. This proposed service of Reduced Time to Synchronise was aimed at service providers which could readily make improvements on existing plant when requested to do so by the TSOs and was not intended to be a long term signal for service providers to invest in technology to address this flexibility.

When a service provider is requested to synchronise they are given a 15 minute early synchronisation tolerance and a 5 minute late tolerance as set out in the Grid Codes. If they fail to synchronise within this window they are issued a failure to synchronise notice by the TSOs and receive no start-up cost from the market. If a service provider is contracted to offer a reduced time to Synchronise and fails to provide this when called to then they will be issued a failure to synchronise notice and in addition to this the TSOs also propose to not pay the service provider the Reduce Time to Synchronise payment as an incentive structure.

The TSOs proposed that this new services would be introduced for the 2011/2012 tariff year on a bilateral basis. This is because existing generating units can offer this service by different technological means, which results in each generating unit incurring unit specific incremental costs and having specific technical capabilities and limitations whilst offering these services. This approach was also established from discussions the TSOs had with all service providers during the 2010/2011 tariff year. During the 2011/2012 tariff year the TSOs propose to continue to review the system value offered by these services and to consider the development of a harmonised rate for all generating units or a generator type harmonised rate for the 2012/2013 tariff year (i.e. a rate for CCGTs, rate for OCGTs, rate for thermal plant, etc). This service was not necessarily intended to be introduced as a long term product in light of the future review of the design of Ancillary Services being carried out by the TSOs. The proposed short term services were intended to help reduce Dispatch Balancing Costs and offer increased operational flexibility.

Some service providers have stated that that they may be open to an element of risk by contracting for this service, however the TSOs would like to clarify that an incentive payment will be made for those who contract for the service and who have accessed the risk for their own unit(s). In addition to this the TSOs will only contract with service providers who wish to do so.

3.2.4. TSOs' Recommendation

The TSOs believe that the Reduced Time to Synchronise service will offer system benefits and help reduce Dispatch Balancing Costs. They therefore propose that short-term agreements will be established with relevant service providers and that remunerate will be based on an agreed set of incremental costs which the service provider will incur in providing this service. In addition to this incremental cost an incentive payment will be paid to the service provider and payment will only be made when utilised. These costs will be negotiated on a bilateral basis with each eligible service provider to obtain the best value for money.

3.3. FLEXIBLE MULTIMODE OPERATION

3.3.1. Introduction

In the consultation paper the TSOs discussed how a number of existing CCGTs on the island have the technical capability to operate in OCGT mode. The TSOs believe that it would be prudent to have the flexibility to request a unit to switch mode Within Day where there is a system benefit to do so. The service providers however have no current mechanism to be remunerated for operating in OCGT mode **post market gate closure**.

CCGTs typically offer less operational flexibility than an OCGT, especially when required to respond quickly to changes in system events at short notice. For example CCGTs operating in OCGTs offer the following improved capabilities:

- lower minimum stable generation;
- Reduced Time to Synchronise (from instruction);
- Faster loading times;

The TSOs' proposal was that where applicable a service provider could be contracted to operate in OCGT mode **Within Day**. The proposed remuneration for the service would be based on utilisation and would cover the incremental costs such as fuel and maintenance. In addition to this the TSOs also proposed an incentive payment. In the event that a service provider failed to provide this service when requested to then the service provider would lose any payments for that event.

The TSOs proposed to keep under review this service during the new tariff year to determine its appropriateness for the long term and how the design of this should be structured as part of a future review of the design of Ancillary Services.

3.3.2. Respondents Comments

Seven respondents (BGE, Endesa, ESBI, ESBPG, Synergen, TEL, 1 confidential) raised a number of concerns and possible impacts on the market that such a service may have. Three raised the question of how the service would be reflected in the market schedule while three respondents believed that such a service would affect SMP. Two further comments suggested that the market should be changed to allow units to bid in dual modes of operation. One comment queried on whether a service provider would lose infra-marginal rents and availability payments when operating in OCGT mode.

Five comments were received (BGE, ESBI, ESBPG, Synergen, 1 confidential) that stated that the environmental impact of this mode of operation would be greater than the normal mode of operation of bespoke technology.

Three comments (Endesa, TEL, 1 confidential) query the impact that such a service will have on the constraints budget.

Three respondents (BnM, ESBI, 1 confidential) agree that the service should be remunerated under AS. One of these however cautions that it should only be remunerated under AS for short term system support. A further comment suggests that any remuneration should be capped so that the service is procured as efficiently as possible.

3.3.3. TSOs' Response

The TSOs proposed that this service would be dispatched Within Day and thus the SEM market schedule would not be impacted. The generating unit would not redeclare its availability when operating as an OCGT Within Day. The generating unit may incur uninstructed imbalances due to this within day operation, however this would be remunerated through the AS Agreement with the service provider.

The TSOs proposed that this new service would be introduced for the 2011/2012 tariff year on a bilateral contracts basis. This is because existing generating units can offer this service by different technological means, which results in each generating unit incurring unit specific incremental costs and having specific technical capabilities and limitations whilst offering these services. This approach was also informed by discussions the TSOs had with all service providers during the 2010/2011 tariff year. During the 2011/2012 tariff year the TSOs propose to continue to review the system value offered by this service and to consider the development of a harmonised rate for all generating units or a generator type harmonised rate for the 2012/2013 tariff year (i.e. a rate for CCGTs, rate for OCGTs, rate for thermal plant, etc). This service was not necessarily intended to be introduced as long term products in light of the future review of the design of Ancillary Services being carried out by the TSOs. The proposed short term services were intended to help reduce Dispatch Balancing Costs and offer increased operational flexibility.

The TSOs acknowledge that the operation of a CCGT in OCGT mode is less efficient, however such a mode of operation would only be used where the TSOs see a system benefit.

The TSOs also propose to only use this service Within Day and where it will directly lead to a reduction in Dispatch Balancing Costs.

3.3.4. TSOs' Recommendation

The TSOs believe that the Flexible Multimode service will offer system benefits and help reduce Dispatch Balancing Cost and recommend that agreements will be set up with relevant service providers and that they will be remunerated for an agreed set of incremental costs which the service provider will incur in providing this service. In addition to this incremental cost an incentive payment will be paid to the service provider and payment will only be made when utilised. These costs will be negotiated on a bilateral basis with each eligible service provider to obtain the best value for money.

The TSOs will closely monitor the benefits of this arrangement and incorporate any design refinements resulting from experience gained from the utilisation of such a service.

3.4. LOWER MINIMUM GENERATION

3.4.1. Introduction

In the consultation paper the TSOs discussed the system benefits which result from improvements in minimum generation when compared to the requirements as set out in the Grid Code . Currently 38 units have a declared minimum generation which is lower than their Grid Code requirement of which 26 provide reserve at these levels. The TSOs also discussed the advantage a service provider gains from having a lower minimum generation in that a better market position may result.

An improvement to the lower declared minimum generation has the following benefits to the system:

- It allows the TSO to dispatch to the lower value rather than de-synchronise the unit;
- It mitigates the risk of the unit failing to synchronise when it is required at a later date; and,
- It keeps the unit in a hot state which allows it ramp up quicker than if it was to be synchronised in a cold or warm state.

Overall there is an expected reduction in Dispatch Balancing Costs by not having to pay for extra start costs or the additional cost of re-dispatching units due to a failure to synchronise. In the demand scenario of night valleys with high wind, it is likely that units will be de-synchronised rather than kept on load. The flexibility of units to reduce to lower level than its Grid Code requirement may reduce the need to 'two-shift' units.

The TSOs proposed two options for this service. The first option was status quo since there is already an incentive to reduce minimum generation for market reasons. The second option was to remunerate on a unit specific basis as certain units may incur costs to improve upon their Grid Code requirement while others can achieve this without incurring costs. It was proposed that the incremental costs would be remunerated on a utilisation basis.

The TSOs proposed to keep under review this service during the new tariff year to determine its appropriateness for the long term and how the design of this should be structured.

3.4.2. Respondents Comments

Six respondents (AES, BnM, Endesa, ESBPG, Synergen, 1 confidential) supported this proposed service, however a number of these raised a number of queries in relation to this. Two comments stated that a harmonised rate for this service would be difficult to quantify and both supported a unit specific payment. One further respondent commented that the specific incremental costs which needed to be captured included any additional risk. One respondent suggested that all generating units that have a minimum generation improvement on Grid Code should receive an incentive payment. One comment also suggested that incentivisation should not be paid to poorer performing generating units.

Three respondents (BGE, TEL, Wärtsilä) did not support this service. Two commented that the market already incentivises this service, while the second respondent also believed that this would lead to additional constraint costs being incurred.

Five respondents (BGE, BnM, Endesa, ESBPG, Wärtsilä) commented on whether the market already incentivises a unit to declare in the lowest minimum generation. Three respondents rejected this suggestion and stated that units may not always recover costs incurred while one respondent suggested that the market already incentivises the lowest possible minimum generation. One of the respondents who rejected this suggestion stated that the loss of reserve payments was the basis for their statement.

One comment (Wärtsilä) was received in relation to the potential environmental impact of such a service and that a detailed analysis should be carried out before this is implemented.

3.4.3. TSOs' Response

From the comments received it appears that even though it would be preferable to have a harmonised rate for this service that this may not be practical from an implementation point of view due to the different technologies and means by which service providers may offer this service. A unit specific remuneration rate which would cover the incremental costs incurred by the service provider is the preferred method of remuneration from the comments received.

The TSOs proposed that this new services would be introduced for the 2011/2012 tariff year on a bilateral contracts basis. This is because existing generating units can offer this service by different technological means, which results in each generating unit incurring unit specific incremental costs and having specific technical capabilities and limitations whilst offering these services. This approach was also informed by discussions the TSOs had with all service providers during the 2010/2011 tariff year. During the 2011/2012 tariff year the TSOs proposed to continue to review the system value offered by this service and to consider the development of a harmonised rate for all generating units or a generator type for the 2012/2013 tariff year (i.e. a rate for CCGTs, rate for OCGTs, rate for thermal plant, etc). This service was not necessarily intended to be introduced as a long term product in light of the future review of the design of Ancillary Services being carried out by the TSOs. The proposed short term services were intended to help reduce Dispatch Balancing Costs and offer increased operational flexibility.

It also appears that a number of units may incur additional costs if they were to provide a minimum generation improvement on Grid Code. The TSOs will liaise with these respondents and if the TSOs believe that there is a system benefit to contracting for this service they will enter into negotiations with the relevant service provider. The TSOs will only contract for a service if we believe it offers the best value to the system and customers.

The TSOs acknowledge that the market typically incentivises service providers to declare the lowest possible minimum generation. From discussions with certain service providers it appears that certain units can achieve further improvements in their minimum generation, however they are not incentivised to do so as their Price Quantity Pairs are not monotonically increasing, meaning they will not be appropriately remunerated through the market for bidding in this lower minimum generation. The TSOs proposal is to contract with these service providers on a bilateral basis and when dispatched to this lower minimum generation value the service provider will be remunerated for the incremental cost in providing this service. Note that the market will be unaffected by this service.

3.4.4. TSOs' Recommendation

Where the TSOs believe that the Lower Minimum Generation service will offer system benefits and help reduce Dispatch Balancing Costs they recommend that they will contract with the service provider and will remunerate for an agreed set of incremental costs which the service provider will incur in providing this service. In addition to this an incremental cost an incentive payment will be paid to the service provider and payment will only be made when utilised. These costs will be negotiated on a bilateral basis with each eligible service provider to obtain the best value for money.

3.5. SYNCHRONOUS COMPENSATION

3.5.1. Introduction

In the consultation paper the TSOs proposed this service whereby a generating unit can declare themselves available to provide reactive power and Automatic Voltage Regulation services to the TSOs while not generating active power. This is achieved by the generating unit importing power from the transmission system and offers the TSOs increased operational flexibility and potential reductions in Dispatch Balancing Costs.

The TSOs proposed to remunerate the service provider for the incremental costs such as imported energy and additional maintenance costs incurred. The service provider would also receive the harmonised reactive power payment. This would be a utilisation based payment.

3.5.2. Respondents Comments

Five respondents (BnM, ESBPG, 3 confidential) support this proposed service. Two comments stated that all incremental costs need to be recovered by the service providers including those who need to procure an increased MIC, imported energy and supplier margin.

One respondent queried whether a unit would forgo its eligible availability for capacity payments when operating in synchronous compensation mode.

One other respondent queried whether the unit would still be eligible for replacement reserve payments when operating in this mode.

3.5.3. TSOs' Response

The TSOs acknowledge that service providers will incur incremental costs in providing this service. The TSOs propose to discuss the unit specific options with each service provider and negotiate these as appropriate while ensuring that they are procured in the most cost efficient manner possible.

When operating in synchronous mode the unit will still be fully declared available and will still be eligible to receive its desynchronised replacement reserve payments.

3.5.4. TSOs' Recommendation

Where a service provider has the technical capability to provide this service the TSOs recommend that they will contract with the service provider and will remunerate for an agreed set of incremental costs which the service provider will incur in providing this service. The AS Agreement will also be updated to reflect that the service provider can provider this service. These costs will be negotiated on a bilateral basis with each eligible service provider to obtain the best value for money.

3.6. PROPOSED EXCHANGE RATE

3.6.1. Introduction

The current exchange rate methodology used for the AS rates is that the Euro (EUR) to Pound (GBP) exchange rate is fixed for the tariff year based on the forward FX rates. The EUR is used as the reference rate, as is consistent with the approach used in the Single Electricity Market (SEM), therefore the rates in GBP are changed in line with the fixed exchange rate at the beginning of each tariff year.

The TSOs noted in the 2010/2011 OSC Explanatory Paper[10] that a review of the exchange rate would be considered for the 2011/2012 tariff year. The TSOs developed a number of options for the exchange rate methodology and invited comments from interested parties on these. These options are described as follows:

- **Option 1 – Exchange Rate based on the Forward FX rate**

The approach currently used for the Ancillary Services rates is that the EUR to GBP exchange rate is fixed for the tariff year. The derivation of the currency exchange rate was the same methodology as that was used in the annual SEM Capacity Pot calculation when this methodology was adapted in 2009[11]. This methodology provided for an exchange rate based on the 12 monthly forward FX rates for the period in question.

The forward FX rate is simply the rate at which one currency can be exchanged for another currency, at any given date in the future, as at/agreed today. It is calculated using the current spot FX rate (current market price for delivery in 2 business days), and then adding or subtracting the 12 monthly forward points that may apply to that rate. Forward points are a measure of the difference in the underlying interest rates for both currencies, expressed as a proportion of the underlying exchange rate price. Forward points are used to account for any benefit/disadvantage from the difference in these underlying interest rates. Generally the spot rate is far more volatile than the forward points, and as such is the key driver/ determinant of the overall forward rate.

If this option is chosen then it is proposed that the exchange rate for the new tariff year based on the forward exchange rate at the time of the consultation.

This option is to continue to use the methodology currently used by the TSOs in determining the exchange rate for AS. The TSOs believe that this option provides certainty of the rate to the AS Providers, however this methodology may be susceptible to volatility in the EUR to GBP exchange rate during the year.

- **Option 2 - Exchange Rate based on the 5 day Average**

The Single Electricity Market Operator (SEMO) consults annually on the Annual Capacity Exchange Rate. Based on comments received from the 2011 consultation[9,12], the SEM Committee revised their original proposal for how this rate is calculated due to the large volatility in the EUR to GBP rate in recent years. The revisions to how the rate was calculated are as follows:

10 Other System Charges 2010/2011; Explanatory Paper; 22nd September 2010

11 Harmonised Ancillary Services & Other System Charges; Rates Consultation; 8th June 2009

12 Harmonised Ancillary Service 2010/2011; Consultation Paper; 9th July 2010

- The rate is determined closer to the beginning of the period to which it applies while also giving certainty to the market of what exchange rate will apply for this period. The SEM use a calendar year for settlement purposes and a rate up to the end of November was deemed appropriate i.e. one month before the start of the period; and,
- Based on the volatility of the EUR to GBP exchange rate the rate is calculated as an average of the rate over a 5-day period.

This option is a variant of Option 1 by continuing to use the forward FX rate, however the Annual Capacity Exchange Rate revisions will be adopted in determining the rate. The TSOs believe that this option provides certainty of the rate to the service providers, however this methodology may be susceptible to volatility in the EUR to GBP exchange rate during the year. By using the 5-day average to calculate the forward FX rate this option would be less vulnerable to exchange rate fluctuations within the timeframe at which the rate is set when compared to option 1.

If this option is the chosen then the final exchange rate used for the AS will be based on the 5- day average rate for the period 22 August 2011 to 26 August 2011 i.e. one month before the start of the 2011/2012 tariff year.

- **Option 3 - Exchange rate based on daily, weekly or monthly rates**

Due to the volatility in the EUR to GBP exchange rate during recent years it may be more appropriate to use an exchange rate to reflect the actual exchange rate during a defined period such as a daily, weekly or monthly rate. This rate would be set ex-post based on the actual exchange rate during the defined period. The relevant exchange rate would be obtained from the European Central Bank.

3.6.2. Respondents Comments

Comments on this section were received from six industry participants (AES, BnM, ESBI, PPB, Synergen, TCC). One respondent (TCC) commented that any decision on exchange rate should take account of the final consumer. Two respondents (AES, PPB) were in favour of Option 2 in the consultation paper believing that consistency with the Annual capacity Exchange Rate to be an important principle. Three respondents (BnM, ESBI, Synergen) supported Option 1 as this would avoid costs being incurred for both participants and the TSOs. One of these respondents (ESBI) stated that supporting Option 1 is consistent with the approach used in the SEM. A respondent (PPB) stated they would not support Option 3 as it would introduce an additional variable in forecasting annual HAS revenues.

3.6.3. TSOs' Response

The TSOs would like to clarify that Option 2 is in line with how the SEM currently calculate the forward FX rate. Option 1 was used in the SEM prior to the 2011 calendar year. The TSOs do not believe that implementing Option 2 would result in system changes and therefore implementation costs as it would remain a single exchange rate figure as in Option 1.

3.6.4. TSOs' Recommendation

The TSOs recommend that we align with SEM method of calculating the Exchange Rate, Option 2 in the consultation paper. If this option is chosen then the final exchange rate used for the AS will be based on the 5-day average rate for the period 22 August 2011 to 26 August 2011 i.e. one month before the start of the 2011/2012 tariff year. Note that the SEM method is calculated for the period

24 November 2010 to 30 November 2010 for the 2011 calendar year, therefore the AS exchange rate and the SEM rate may differ.

3.7. PROPOSED HARMONISED RATES

3.7.1. Introduction

The TSOs carried out analysis on the levels of services which would be required and available for the 2011/2012 tariff year. This was based on an analysis of the actual output and availability of all generating units for the period February 2010 to February 2011, as an assumption was made that the demand and running regime of the units would be broadly in line with that expected for the new tariff year. Allowance was also made for a number of smaller units which will be connecting to the system for the 2011/2012 tariff year.

3.7.2. Respondents Comments

Two comments were received (AES, PPB) that they were disappointed with the level of analysis and lack of a comprehensive summary on the TSOs proposals to keep the rates unchanged.

One respondent (ESBI) agrees that the rates should remain unchanged as this allows a better prediction of future income. One other respondent (Endesa) is disappointed at the proposal to keep the rates unchanged. They reference a previous RA decision "AS allowances should increase proportionally in anticipation to a need for higher levels of service". They also believe that a failure to increase the rates is contrary to the Ancillary Service Design Guidelines set out in SEM 08-128 which states that service providers should be able to reasonably predict their annual income from providing AS. They recommend that the rates should at the very least be adjusted to allow for CPI. One other comment (PPB) notes that inflation in the UK has increased significantly.

3.7.3. TSOs' Response

The TSOs carried out significant analysis on the rates for the 2011/2012 tariff year to determine if they were appropriate. For each tariff year the TSOs separately request an AS Allowance from their respective RA through their respective price review process and in accordance with the relevant statutory and licensing arrangements pertaining which differs between the two jurisdictions. The TSOs then determine the level of services which will be available for the tariff year. Using the ratios set out in a previous TSO consultation paper[13], the total level of services which is expected to be available and the AS Allowance the TSOs set the rates accordingly.

The level of services expected is typically obtained by looking at the level that was available over the previous 12 months period while also making an allowance for any service from new providers and increases or decreases in existing contracted levels. For the 2011/2012 tariff year the TSOs also considered using the output of the Plexos study for the constraints model to determine the level of services which would be available. Using plexos data for a 4 month period from 01/10/2010 to 31/01/2011 and the actual metered data for this period the TSOs undertook a comparison to determine the most appropriate model. This analysis showed that the plexos model was slightly off in its comparison for reserve whereas there was a very small error for the reactive power service levels. The error for reserve was attributed to the fact that plexos optimises reserve which the constraints forecast would include an allowance for. Based on this analysis the TSOs felt that the rates should be set based on the level of services which was actually available from 01/05/2010 to 30/04/2011. An allowance was also made for a number of windfarms which were expected to

[13] Harmonised Ancillary Services & Other System Charges; Rates Consultation; 8 June 2009

contract for reactive power during the new tariff year. Since the level of services was expected to increase the TSOs requested a corresponding increase in the AS Allowance so that the rates remained unchanged.

One of the respondents comments that a previous RA Decision stated that "AS allowances should increase proportionally in anticipation to a need for higher levels of service". As described above this has been taken into consideration as the AS Allowance has increased over the previous years. The TSOs believe that the respondent is referring to the rates and not the allowance. This respondent also states failure to increase the rates is contrary to the Ancillary Service Design Guidelines set out in SEM 08-128 which states that service providers should be able to reasonably predict their annual income from providing AS. In this paper it is stated that the certainty of rates would result in increased predictability of income, provided the service provider meet contracted service levels. The TSOs feel that this has remained unchanged and that maintaining the rates at the current levels has this desired effect.

3.7.4. TSOs' Recommendation

The TSOs recommend that the existing AS payment rates, charges and constants are maintained for the 2011/2012 tariff year as set out in Table 3.1 and Table 3.2, other than those which change as a result of the final exchange rate used.

EirGrid and SONI have separately engaged with both CER and URegNI respectively in order to determine the basis of charging for the provision of Ancillary Services for the tariff year 2011/12 in accordance with the statutory and licensing provisions pertaining within their respective jurisdictions. EirGrid is assuming a revenue requirement of €37.7m[14], consistent with its overall submission to the CER as part of the 2011-15 Determination of Transmission Revenues (CER/10/206), although the costs as incurred will ultimately be provided on an outturn basis, and SONI is assuming a revenue requirement of £11.0m, although again the costs as incurred will be provided on an outturn basis. Further information is provided in Section 3.8.

[14] The current arrangements are determined on a calendar year basis but have been converted to tariff year for this purpose.

Service	Categories		
Reserve	Primary Operating Reserve	€ 2.22 / MWh	£ / MWh
	Secondary Operating Reserve	€ 2.13 / MWh	£ / MWh
	Tertiary Operating Reserve 1	€ 1.76 / MWh	£ / MWh
	Tertiary Operating Reserve 2	€ 0.88 / MWh	£ / MWh
	Replacement Reserve (Synchronised)	€ 0.20 / MWh	£ / MWh
	Replacement Reserve (De-Synchronised)	€ 0.51 / MWh	£ / MWh
	Primary Operating Reserve Charge Period	30 days	
	Secondary Operating Reserve Charge Period	30 days	
	Tertiary Operating Reserve 1 Charge Period	30 days	
	Event Frequency Threshold	49.5 Hz	
	Reserve MW Tolerance	1 MW	
	Reserve Percentage Tolerance	10%	
Reactive Power	Reactive Power Lagging	€ 0.13 / MVArh	£ / MVArh
	Reactive Power Leading	€ 0.13 / MVArh	£ / MVArh
Black Start	Black Start (Aghada)	€ 64.71 / h	n/a
	Black Start (Ardnacrusha)	€ 22.84 / h	
	Black Start (Erne)	€ 22.04 / h	
	Black Start (Lee)	€ 9.82 / h	
	Black Start (Liffey)	€ 8.02 / h	
	Black Start (Turlough Hill)	€ 81.63 / h	
	Black Start Charge Period (Partial Fail)	30 days	
	Black Start Charge Period (Total Fail)	90 days	
New Services	Reduce Time to Synchronise	€ Unit Specific	£ Unit Specific
	Flexible Multimode Operation	€ Unit Specific	£ Unit Specific
	Lower Minimum Generation	€ Unit Specific	£ Unit Specific
	Synchronous Compensation	€ Unit Specific	£ Unit Specific

Table 3.1. Recommended Ancillary Service Payment Rates and Constants for 2011/2012 tariff year

Categories		
Primary Operating Reserve	€ 2.22 / MWh	£ / MWh
Secondary Operating Reserve	€ 2.13 / MWh	£ / MWh
Tertiary Operating Reserve 1	€ 1.76 / MWh	£ / MWh
Tertiary Operating Reserve 2	€ 0.88 / MWh	£ / MWh
Replacement Reserve (Synchronised)	€ 0.20 / MWh	£ / MWh
Replacement Reserve (De-Synchronised)	€ 0.51 / MWh	£ / MWh
Primary Operating Reserve Charge Period	30 days	
Secondary Operating Reserve Charge Period	30 days	
Tertiary Operating Reserve 1 Charge Period	30 days	
Event Frequency Threshold	49.5 Hz	
Reserve MW Tolerance	1 MW	
Reserve Percentage Tolerance	10%	
Reactive Power Lagging	€ 0.13 / MVArh	£ / MVArh
Reactive Power Leading	€ 0.13 / MVArh	£ / MVArh
Black Start (Aghada)	€ 64.71 / h	n/a
Black Start (Ardnacrusha)	€ 22.84 / h	
Black Start (Erne)	€ 22.04 / h	
Black Start (Lee)	€ 9.82 / h	
Black Start (Liffey)	€ 8.02 / h	
Black Start (Turlough Hill)	€ 81.63 / h	
Black Start Charge Period (Partial Fail)	30 days	
Black Start Charge Period (Total Fail)	90 days	

Table 3.2. Recommended Ancillary Service Charge Rates and Constants for 2011/2012 tariff year

3.8. SINGLE AS ALLOWANCE

3.8.1. Introduction

In the RAs Decision Paper in 2010[15] and the Information Note to Service Providers[16] they noted that the current arrangement of two independently capped and managed AS allowances for EirGrid and SONI would be reviewed and that these may eventually be transitioned to a single all-island allowance which is in line with the Capacity Payment Mechanism (CPM) used in the SEM.

The TSOs presented two options in the consultation paper for the 2011/2012 tariff year. Option 1 was to maintain the current arrangement of separately capped and managed AS Allowances. Option 2 involved optimising a single allowance which would involve carrying out an ongoing review of the reserve outturn between both jurisdictions to determine that they are in line with the 3:1 requirement. This option was the TSOs preferred option.

3.8.2. Respondents Comments

Five respondents (BnM, ESBI, ESBPG, Viridian, 1 confidential) support Option 2.

Four respondents (AES, Endesa, PPB, Synergen) supported Option 1. Three of these respondents referred to operational/jurisdictional differences which still exist and that optimising the allowance should be delayed until these are addressed.

One respondent (Endesa) welcomed further information on the 3:1 ratio and one whether the single all island allowance was possible under current legislation.

3.8.3. TSOs' Response

The TSOs acknowledge that there are still certain jurisdictional differences, however these predominantly relate to reactive power which needs to be sourced locally. The TSOs were only proposing in the consultation paper to re-balance the reserve outturn.

The licensing and legislative framework pertaining determines each TSO's separate responsibility to procure such Ancillary Services as are necessary in respect of the system for which it is responsible. Moreover, the licensing framework also determines the basis for the recovery of revenues necessary to meet each TSO's licence obligations. Therefore the framework does not currently exist whereby a single Ancillary Services pot across the island can be determined.

Nonetheless, the TSOs believe it is appropriate that there is a fair and equitable sharing of costs on the island such that all consumers pay appropriately for the services provided and of which they avail. To that end the TSOs believe it is appropriate that an ex post adjustment mechanism be made in respect of the Operating Reserve portion of the Ancillary Services outturn such that all consumers on the island make equal contribution (effectively a re-allocation on a 3:1 basis between the Republic of Ireland and Northern Ireland). This would not create a separate all island pot for Operating Reserve, for which as outlined above there is no provision, but would enable the same effect to be achieved by means of a TSO to TSO adjustment on the actual outturn. The TSOs

15 (SEM-10-001); Harmonised All-Island Ancillary Services Rates and Other System Charges; Decision Paper; 4 Jan 2010

16 (SEM-10-42); Harmonised All-Island Ancillary Services Rates and Other System Charges; Information Note to Service Providers; 29 June 2010

presented an example of this re-balancing mechanism in Section 4.1.2 of the AS Consultation Paper as follows:

Example Figures	**EirGrid [€m]**	**SONI [€m]**	**EirGrid : SONI Ratio**
Actual Reserve Outturn	20	8	2.5 : 1
Rebalanced Outturn	21	7	3 : 1

Table 3. 3: Optimising Single Allowance Example

The example shown in Table 3.3. shows that a transfer of €1 million from EirGrid to SONI would be required to balance the reserve spend between both jurisdictions.

The current allowance for Operating Reserve in the Republic of Ireland is €24.2m and in Northern Ireland £7.3m. Adjustments will be made in subsequent years to seek to ensure that the attribution of costs to customers on the island is fair and proportionate.

3.8.4. TSOs' Recommendation

The TSOs recommend that Option 2 which involves balancing the reserve outturn at the end of each tariff year should be carried out from the 2011/2012 tariff year. This is consistent with the relevant licensing and statutory arrangements pertaining and, while it does not involve a single AS pot, achieves many of the same objectives in terms of the fair attribution of costs to customers across the island in respect of the provision of Operating Reserve. The reactive power and black start allowances will continue to be managed separately by the respective TSOs since there are still jurisdictional differences.

3.9. AS REPORTING

3.9.1. Introduction

The TSOs proposed to report on AS by publishing the following information each month in line with the AS settlement process. The reports will be based on all-island data.

1. Reserve Outturn;
2. Reactive Power Outturn;
3. Black Start Outturn;
4. Reserve Charges.

In the consultation paper the TSOs included monthly data from the 2009/2010 tariff year separated into the four categories above.

3.9.2. Respondents Comments

Eight comments (AES, Endesa, ESBI, ESBPG, EGI, PPB, Synergen, VPE) were received on this proposal to publish monthly figures for each category of reserve outturn, reactive power outturn, blackstart outturn and reserve charges. All respondents welcomed the introduction of monthly reports with one respondent (Synergen) requesting the data to be broken down by generating unit by month with historical data also being made available. A respondent (AES) would like to see the reporting extended to cover other areas of operational information such as availability, system events, capacity margin, demand, wind generation, outages etc. The final comment (ESBPG) stated reports should be restricted to market participants unless there is a higher imperative dictating wider release of the data.

3.9.3. TSOs' Response

The TSOs welcome the positive response from the industry participants regarding the proposal to publish monthly figures for AS. The TSOs believe that the proposed template is a step forward in providing improved transparency and will review the proposed template and seek to include more general performance parameters in the near future.

3.9.4. TSOs' Recommendation

The TSOs recommend that monthly reports are made available on the TSOs' websites. Historical data commencing from the implementation of HAS & OSC on 1st Feb 2010 will also be made available.

4. GENERAL COMMENTS

4.1. Long Term AS

Nine comments were received (BGE, Endesa, EGI, IWEA, TCC, TEL, VPE, 2 confidential) in relation to how a long term vision for AS is required.

Significant work has been under taken by the TSOs on the changing needs of the power system and this work will feed into the future review of the design of Ancillary Services. The TSOs anticipate a number of industry briefings over the next 18 months and will be ensuring that the RAs and the industry are updated regularly regarding the status of this future review of the design of Ancillary Services.

4.2. Windfarms & AS

One comment was received (ESBI) in relation to the AS Agreement for windfarms. The respondent believes the level of liability provided for in the agreement is far in excess of the value of the contract to wind energy producers. They also believe any such penalties are in most cases beyond the control of wind energy producers. One other respondent also welcomed confirmation that AS payments would be available to wind energy producers if they could demonstrate provision of any AS.

In December 2010 EirGrid met with wind energy producers to discuss the issue raised with the liability clause in the AS Agreement. EirGrid clarified this to the satisfaction of the wind energy producers and this was published on the EirGrid website[17]. Since this a number of wind energy producers have entered into an AS Agreement for reactive power with EirGrid. There are currently no wind farms eligible for an AS Agreement in Northern Ireland.

4.3. Reserve

- One respondent (ESBPG) raised an issue with the current reserve charge design. They claim that the believe the expected reserve calculation should be refined to include the Grid Code deadband, the derogated value or the deadband setting requested by the TSO.

  The frequency deadband is defined as a frequency range within which the governor control system is not expected to respond to changes in transmission system frequency. The purpose of the frequency deadband is to filter out noise and not to restrict the normal frequency response of the governor control system. Based on this definition the frequency deadband should not be included in the expected reserve calculation.

- The respondent (ESBPG) also suggests that the reserve payments should be increased by a factor of 2 for a provision of reserve over and above the minimum Grid Code requirement.

  The TSOs do not believe that the rate should be increased in such instances. If a service provider shows that they consistently overprovide during frequency events or from carrying

17 Clarification – Harmonised AS Agreement and Reactive Power Provision; 10 December 2010; available from www.EirGrid.com

out tests then the TSOs may contract for the higher reserve value. The service provider would then receive additional payments for this.

- One respondent (PPB) notes that the RA HAS/OSC Information Note[18] specified that there would be an increase in the level of services required in the 2010/2011 tariff year and that the TSOs then reduced the minimum reserve required.

  The largest infeed on the island increased during the 2010/2011 tariff year to 444 MW. The reserve requirements were to have 81% of the largest infeed for POR & SOR and this was reduced after detailed analysis to 75%. This will in itself be kept under review. This is only a minimum requirement and during many times the TSOs are in fact carrying reserve in excess of this.

- One respondent (PPB) notes that if the annual number of frequency events increases that the corresponding risk to service providers also increases. They suggest a trigger whereby if this is breached that the payment rate for existing events increases.

  The TSOs pay the service provider for reserve when dispatched and available to provide this. In addition to this the TSOs introduced a cap on reserve charges at the start of the 2010/2011 tariff year to help reduce the risk on the service providers. The TSOs will however further review this comment and consider its inclusion as part of the 2012/2013 consultation process.

4.4. Reactive Power Payment

One respondent (PPB) commented that the current design of contracting for the reactive power capability at full load does not compensate a service provider for their full capability. They also suggest that any plant or apparatus that can produce or absorb reactive power should be eligible for an AS Agreement.

The current AS Agreement only facilitates payment for generating units as described in the Grid Codes. The reactive power payment rate is based on the capability at full load as this gives an indication of the minimum capability over a range of loads.

4.5. Revision of AS Agreement

One respondent (PPB) suggests that there is no mechanism to revise the level of contracted reserve.

If the TSOs see repeated over performance of a generating unit or through testing then the service provider can make proposals to the TSOs on contracting for the increased reserve level.

18 (SEM-10-42) "Harmonised All-Island Ancillary Services Rates and Other System Charges; Information Note to Service Providers" 29th June 2010, available at www.allislandproject.org

4.6. Black Start

One respondent (PPB) commented that Northern Ireland generators are entitled to payments for the provision of Black Start services however there have been no developments in relation to this.

In the TSOs Explanatory Paper[19] for the 2010/2011 tariff year SONI invited any generators to approach them if they felt they were not fully remunerated for this service. To date no service providers have approached SONI in relation to this

19 "Harmonised Ancillary Services; Explanatory Paper" 22nd September 2010, available at www.EirGrid.com and www.soni.ltd.uk

5. NEXT STEPS

Following a review of comments on the HAS consultation paper the TSOs are now making these recommendations to the RAs. The TSOs will then publish a revised AS Statement of Payment and Charges for the 2011/2012 tariff period.

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Response to Harmonised Ancillary Services Consultation

on behalf of

AES Kilroot Power Ltd and AES Ballylumford Ltd

27 May 2011

1. Introduction

AES Kilroot Power Limited ("AES Kilroot") and AES Ballylumford Limited ("AES Ballylumford") (collectively "AES") welcome the opportunity to comment on the consultation on Harmonsied Ancillary Services.

AES has six merchant generating units registered within SEM which are subject to Harmonised Ancillary Service (HAS) Agreements. In addition we have seven other units which are contracted to NIE Energy Power Procurement Business (PPB) via Generator Unit Agreements (GUAs). It should be noted that NIAUR have issued a consultation paper in relation to the potential cancellation of the remaining GUAs on or around 31 March 2012. A decision from NIAUR is likely to be sometime towards the end of September 2011 and if the GUAs are cancelled AES will be entering into HAS agreements at that time.

2. New Services

General Comment

AES has met with SONI a number of times to discuss potential new AS services and understand the need for new AS services in the short term, and welcome the broader review of the future vision and development of AS in the medium to longer term. AES are committed to working with the TSOs in delivering AS which offer mutual benefits to all relevant stakeholders.

However, we are disappointed with the detail of the commercial proposals for the new AS services as described by SONI. The proposals in no way offer the certainty required by a Generator in terms of assessing the likely revenue and risks that will arise in offering any new AS services.

Offering new AS services requires a Generator to expend effort and cost in terms of feasibility studies, engineering and design and ultimately potentially capital outlay. The extent of these costs may vary, but the Generator needs to ensure that the costs can be recovered – SONI does not address this issue.

The proposal that new AS services should be paid on the basis of utilisation offers no certainty for a Generator as to the extent of likely revenue or return that a new AS service afford. This issue is exacerbated by the proposal not to pay start costs on a failure to synchronise.

The proposals as they stand do not offer a fair balance of risk and reward and in no way incentivise a Generator to offer a new AS.

AES also believes that the structure of new HAS agreements needs to be refined and be made more flexible. Currently generators have no appropriate mechanism to terminate or amend a HAS agreement. Particularly, in relation to new AS services, which carry degrees of operational uncertainty and commercial risk, the HAS agreements need to be more flexible allowing the generator a facility to opt out of the provision of services in relation to newly contracted AS services.

Reduced Time to Synchronise

The following AES units potentially have the capability of offering a reduced time to synchronise, particularly in relation to a cold heat state:

AES Kilroot:	Units K1 and K2
AES Ballylumford:	Units 5 and 6

As stated above, on the basis of the proposals outlined by the TSOs AES are not in a position to offer new AS for reduced time to synchronise as we have no certainty in terms of recovering upfront costs, no idea of what likely revenue we will receive due to dispatch uncertainty and the additional risks associated with failure to synchronise.

We believe that as part of the new AS arrangements SONI should pay the upfront costs associated with pre-agreed design/engineering work, establish a remuneration mechanism based on an availability payment with an additional payment relating to the incremental energy costs when a unit is synchronised. If such an arrangement were introduced, then it would seem reasonable that the Generator does not receive payments if it fails to synchronise.

Flexible Multimode Operation

AES Ballylumford unit CCGT 20 is the only AES unit that can offer this new AS service. It is currently under contract to NIE Energy Power Procurement Business and they may make their own response on this point.

Lower Minimum Generation

AES are currently investigating how we can lower the coal minimum generation figure relating to K1 and K2, as it would be beneficial during those times the units are scheduled within SEM.

K1 and K2 can generate at a lower minimum generation figure, when burning HFO. We would welcome further discussions with SONI as to how a potential new AS agreement for this service could be structured. It would appear to us that a harmonised rate could be difficult for units such as those at Kilroot – the payment would need to capture the specific incremental fuel costs (which vary with time), impacts on O&M costs and other costs elements associated with risk. We would also re-iterate the points highlighted previously, under the General Comments section.

We believe that the TSOs are best placed to provide details on the benefit to the system and would welcome feedback to the industry by the TSOs on this issue on a transparent and consistent basis.

Synchronous Compensation

At this time AES have no units which are in a position to offer this service.

3. Ancillary Service Rates

Proposed Exchange Rate

AES would support moving to Option 2 as described. This is consistent with the how the exchange rate is currently calculated within the determination of the Annual Capacity Exchange Rate. AES believes such consistency is an important principle and does provide a degree of certainty for service provides.

Proposed Harmonised Rates

In the absence of the TSO analysis it is difficult to meaningfully comments on the proposed rates. We believe that it is dangerous to assume that demand and running regime will be "in line with that expected for the new tariff year". The TSOs should publish their analysis and assumptions to all market participants on a transparent basis to ensure that the proposed rates can be properly scrutinised.

AES have a specific concern in relation to the units K1 and K2 at Kilroot. At current commodity prices, these units fall outside the market schedule, however they are dispatched on a constrained on basis at load factors in excess of 50% for the year. This substantive constrained on running highlights that the units offer an essential service to the transmission system, yet AES do not receive a return commensurate with such levels of service. We believe that the AS rates need to be more unit specific, properly reflecting the 'true 'value of each unit to the system (outside of the market).

4. AS Allowance and Reporting

AS Allowance

AES believes that substantial additional analysis needs to be undertaken by the TSOs and provided to service provides in relation to this issue. Certainly the logic for having separate allowances has not changed – both jurisdictions will have separate operational requirements until the new N-S interconnector is commissioned.

Consequently we support maintaining the status quo for the time being.

AS Reporting

AES welcomes this move to provide additional information to market participants as such transparency is long overdue. We would like to see the reporting extended to cover other areas of operational information such as availability, system events, capacity margin, demand, wind generation, outages etc. Some of this information is already available but we believe that the TSOs should make it available on a consistent all-island basis (with information also provided for each Jurisdiction).

A 'one-stop' monthly report would provide much needed transparency, ensure information is made available to all participants on a consistent basis, and increase confidence in market operation and understanding.

BORD NA MÓNA POWERGEN

Submission by Bord na Móna PowerGen

on the

Harmonised Ancilliary Services Consultation for the Tariff Year 1/10/11 – 30/09/12

Harmonised Ancillary Services
Response to Consultation Paper – May 2011

Introduction

Bord na Móna welcomes the opportunity to respond to the consultation paper published by the TSO which seeks views on the proposed new harmonised Ancillary Services (AS).

Bord na Móna appreciates that having an enhanced range of Ancillary Services available to the TSOs is beneficial on a number of counts including the security of supply, increased system flexibility and the potential to reduce the annual constraints budget.

This submission deals with the proposals in the order they appear in the original consultation paper.

(2.2.1) Reduced Time to Synchronise

Bord na Móna supports the rationale for reducing the nominal 'Time to Synchronise'. The key principles behind the service, as outlined in the consultation paper, provide a high level framework for the implementation of such a service, however it is acknowledged that negotiations regarding remuneration will have to be both transparent and also unit specific.

(2.2.2) Flexible Multimode Operation

Bord na Móna sees the merit in increasing the flexibility of the overall system by harnessing the technical capabilities of certain CCGT units and operating them in OCGT mode.

(2.2.3) Lower Minimum Generation

The lowering of Minimum Generation levels benefits the overall flexibility of the transmission system and should reduce Dispatch Balancing Costs (DBC). The consultation paper queries whether an incentive is appropriate to encourage generators to improve upon their Grid Code minimum standards. The consultation paper postulates one argument wherein the current market arrangements provide existing and sufficient incentives for generators to lower minimum generation level. However, it would appear that the extant market incentives are not adequate to entice generators to reduce their declared minimum generation. The alternative contention is also raised in the paper, namely that certain units will incur costs to improve upon their Grid Code requirements - Bord na Móna agree with this latter assessment. In such instances the generator, on a unit specific basis, would require remuneration to compensate for the loss incurred while generating at sub-grid code levels.

While Bord na Móna can see the merit in the TSO's preference for a harmonised rate for this 'Ancillary Service', caution against undue haste is urged. The incurred costs arising from reducing the minimum generation level are particular to each generating unit and it may therefore be prudent to continue a case by case approach for this particular service into the medium term.

(2.2.4) Synchronous Compensation

Bord na Móna welcomes the introduction of Synchronous Compensation service. The proposed design contained in the consultation paper appears equitable, however clarification and more importantly the consideration of the points outlined below need to be incorporated into the final implementation of the proposed service.

In the first instance it is proposed that this new Ancillary Service will remunerate the provider for the incremental costs such as imported energy. However, all costs (fixed as well as variable) associated with this service need to be recovered. In particular, if recovery is limited to the marginal energy cost alone, the provider runs the risk of not recovering the full cost of purchasing this energy as there appears to be no provision for service providers who need to procure an increased Maximum Import Capacity (MIC).

Secondly, while it is formally noted in the consultation paper that the remuneration of additional maintenance costs will be met, such additional costs (primarily related to supplementary O&M expenses and increased consumables – filters, lubrication oil etc) are likely to be unit specific and will require direct engagement between the service provider and the TSOs.

Finally, it is taken as axiomatic and self evident that a unit being dispatched for synchronous condensing does not forego its eligible availability for capacity payments.

(3.2) Proposed Exchange Rate

The fact that the SEM Committee found it necessary to revise their original methodology for the calculation of the exchange rate late last year suggests that striking a balance between providing certainty and the inherent volatility of the market is not straightforward. It is acknowledge that the revised rate 0.8448 €/£ underestimated that actual spot rate for the significant majority of the tariff year to date. But, be that as it may, the methodology employed, based on the 5 day rolling average in the last month before the tariff year is a reasonable attempt to reach a balance between the competing objectives of certainty and market volatility. Bearing this fact in mind, it would therefore be reasonable that the exchange rate used in calculating AS rates be consistent with that used by the SEMC in calculating the Annual Capacity Exchange Rate.

(3.3) Proposed Harmonised Rates

Bord na Móna notes that these rates will remained unchanged based on the objective analysis carried out by the TSO.

(4.1) Single AS Allowance

Bord na Móna supports the TSO's preference for Option 2 – Optimising a Single Allowance, insofar as it incorporates a cross boarder rebalancing flow. Again this approach converges and is consistent with the approach being proposed in the recent TUoS consultation[1].

For and on behalf of

Bord na Móna PowerGen

Dr John MacNamara 27th May 2011

Projects Manager

Bord na Móna PowerGen

[1] SEM-11-018(a)

27th May 2011

David Carroll,
Eirgrid,
160 Shelbourne Road
Ballsbridge,
Dublin 4

Vivienne Price,
SONI,
Castlereagh House,
12 Manse Road
Belfast BT6 9RT

Dear David, Vivienne

Re: Consultation on Harmonised Ancillary Services

Thank you for the opportunity to respond to and input into the Transmission System Operator's (TSO's) consultation on Harmonised Ancillary Services for the tariff year 2011/12.

Bord Gáis Energy (BG Energy) fully supports the transmission system operators (TSOs) initiative to increase flexibility in the market which will accommodate the renewable program. BG Energy believes that Ancillary Services (AS) have a crucial role to play in developing a cost efficient market in the long term. Previous analysis undertaken on behalf of BG Energy indicates that AS products can be financed through the constraints pot and associated reductions in the pot as a result of more flexible and efficient reserve.

On a general point regarding the new AS proposed by the TSOs, BG Energy considers that the absence of indicative levels of incentive payments associated with each AS in this consultation makes it impossible for prospective parties to properly impact assess the costs and benefits of providing them. The system benefits of providing new AS products have been discussed at length, however potential investors require clarity on the value placed on them by the TSOs before commenting on the proposals and committing to provide new AS. Furthermore, BG Energy considers that these AS are being sought without due consideration to their impact upon the Single Electricity Market (SEM). Some of these services could provide short term gains but lead to long term inefficiencies due to increased cycling and lower load factors for efficient CCGTs. Other implications are potentially higher carbon output from the SEM fleet than could be provided by other suggestions.

In order to provide the necessary signals for investment in new bespoke flexible generation that will provide efficient flexible generation, BG Energy considers it essential that the TSOs provide a comprehensive plan for new AS accompanied by underlying analysis and indicative prices. The TSOs must also provide detail regarding how they intend to fund new AS and how these new services as well as the funding options will impact the SEM. The provision of a detailed plan for AS products, revenues and financing is vital at this stage if appropriate AS's are to be provided and invested in a timely manner. Without such a plan and its corresponding analysis, participants cannot make a fully considered judgement with respect to providing new AS.

The remainder of this response focuses on the specific proposals presented in the TSOs consultation paper:

1. New Ancillary Services

1.1 Reduced Time to synchronise

Given the expected variability and volatility in generation in the coming years, a plants ability to reduce its time to synchronise will obviously benefit the system and its users in terms of providing stability. The issue with reducing a plant's time to synchronise is that it will encourage increased cycling of plants which comes with a significant cost. Another potential risk for CCGTs is that the commodity and capacity risk increases with reduced synch times. It is difficult to understand the magnitude of the benefit that this AS can provide to the system without more detailed analysis of the technical benefits and SEM savings. Without this supporting analysis, it is difficult for parties to comment on its relative value and merit.

The consultation paper proposes that where a unit fails to synchronise it will forsake its start up costs. This in BG Energy's view seems quite excessive, especially considering that the benefit or incentive is undefined at this stage. Again, without greater detail of the revenues, costs and actual benefits it is difficult to comment on the substantive merits of the product and the proposals. However, if such a penalty was to be imposed, generators would need a considerable incentive to provide the product and take on the added costs and risks associated with it.

1.2 Flexible multimode operation:

The provision of a flexible multi-mode product is in BG Energy's view a short-term measure to what will be a medium to long-term problem. Recognising the increasing need for more flexible, peaking plant, BG Energy does not believe that the proposal to convert existing generation will deliver the optimal solution for the system or the market.

This AS has a potentially large impact on the cycling levels and load factors of plant in the SEM. The all-island system will need efficient plant– both technically and commercially – to meet the needs of more variable generation and demand. This will not be achieved by converting existing plant into 'multi-mode' operation and in reality will accelerate the depreciation of certain CCGT plant while also failing to provide the incentives for new investments in OCGT. Bespoke technology will provide an efficient, lower carbon emitting source of flexibility. In short, BG Energy does not believe this is a suitable long-term strategy for the market. Again, BG Energy urges the TSOs to develop a wider and longer-term plan for the need and reward of AS's in the SEM so that the right products for both the short-term and long-term are delivered.

Notwithstanding the economic implications of this proposed AS, BG Energy is also unsure from a practical point of view how the proposed AS would work in the market system. Currently the market engine cannot accept more than one set of technical offer data from a generation unit for a given trading day. It is therefore unclear as to how a unit operating under multimode will bid into the market and be reflected in the market schedule.

1.3 Lower minimum generation

BG Energy considers the introduction of a separate AS payment for lower minimum generation unnecessary. In reality, the market already provides for generators to present details of their minimum generation capabilities and it is therefore unlikely that this is or will be an additional service that can be technically provided by generators.

Conclusion:

BG Energy recognises the fundamental importance of AS in incentivising conventional generation which is sufficiently flexible and efficient to support the fluctuating and unpredictable nature of renewable generation. However, the proposals put forward by the TSOs will not deliver the required AS in the most cost effective and time efficient manner possible. BG Energy urges the TSO to consider the wider implication these AS services will have in the context of the SEM.

In this regard, BG Energy requests that the TSOs undertake a comprehensive study of future AS requirements providing clear analysis of:

- what AS products are needed;
- indicative AS payment levels;
- how they will be funded; and
- what value they will bring to the system.

Such detail will allow parties to take a considered view of the value of AS rather than solely focusing on covering the cost of their provision. It will also help to ensure that the necessary investment signals are in place to properly incentivise the optimum level of flexibility in the transmission system.

Please do not hesitate in contacting me if you have any queries on the comments raised.

Yours sincerely,

Dermot Lynch
Regulatory Affairs – Commercial
Bord Gáis Energy

Endesa Ireland response to Harmonised Other System Charges Consultation and Harmonised Ancillary Services Consultation 2011/12

Endesa Ireland welcomes the publication of Consultation Papers on Harmonised Other System Charges and Harmonised Ancillary Services. Endesa Ireland encourages the move toward an all-island Ancillary Service market. As a first stage, harmonised rates are appropriate. In the medium-term, Endesa Ireland considers that a more competitive market for Ancillary Services should be introduced, whereby annual Ancillary Service contracts are auctioned to the lowest bidders.

We consider that this would achieve the delivery of Ancillary Services at cost reflective and competitive prices and would also help the all-island electricity market move a step closer towards achieving an effective balancing market as is the case in both the UK and France. Given that the EU aim that regional markets be in place by 2014, progress in the development of cross border balancing is becoming increasingly urgent.

Endesa Ireland considers that the current payments for Ancillary Services do not reflect the actual cost of providing these services or their value to the system. The System Operators have explained in previous fora relating to Harmonised Ancillary Services that their derivation of payments for Ancillary Services were calculated based on the cap the regulatory Authorities had placed on Ancillary Service Payments. This is not an appropriate means of procuring services in a competitive market. Endesa Ireland suggests that payments should be based on the value of these services to the system. Where additional services are now required by the System Operators, additional monies must be available to pay for these services.

In addition, a principle underpinning Ancillary Service provision must be that penalties should not exceed the value of payments for providing a service. We would also note that while AS payments have remained constant, AS penalties have increased. It is not clear how the penalties are being calculated. These penalties should be reflective of the loss of the service to the system, which means as a corollary that if penalties increase, the amount paid to generators for providing Ancillary Services (based on their value to the system) should also increase. It is not appropriate to set an overly penal amount in order to fund new services required by the TSOs.

Furthermore, as there are limitations of the ability to source Ancillary Services on a cross-jurisdictional basis pending the completion of the North South tie-line, and as there are differing operational requirements in each jurisdiction, it is not appropriate to set a single AS allowance at this time.

Endesa Ireland highlights that changing system conditions require an increase in the Ancillary Services that are needed to facilitate EirGrid in its duty to maintain a safe, secure, reliable, economical and efficient transmission system. The need for additional services also means that there is a need for an increase in the annual AS allowance to pay for these services, as the value for existing services has not decreased. The pot must grow in order to remunerate generators for the provision of additional services. This increased allowance does not justify a reduction in the capacity pot; capacity and ancillary services are separate and distinct products/services which are necessary for system security and reliability. These revenue streams must remain distinct. The need for sufficient available capacity has not reduced. Therefore, the methodology for the calculation of the capacity pot should not change. Any increase in ancillary service payments should not affect the capacity payment pot.

Endesa Ireland looks forward to the publication of the TSOs' considered position on the system services that will be needed for secure and efficient operation of the power system in the coming years. While much has been said about the need for flexibility, the SOs and RAs have yet to publish a paper setting out the system support service requirements that will be needed to support the changing generation landscape. It is important that generators are appraised of future system requirements and any changes in Ancillary Service payments at the earliest opportunity, as this will inform investment decisions.

Endesa Ireland makes the following points with respect to the detailed proposals in the Consultation papers; numbering used reflects the relevant Consultation Paper sections.

Harmonised Other System Charges Consultation Paper

1.3.2 GPI Double Charging
Endesa Ireland welcomes the design refinement to remove double charging in circumstances where a unit makes a non Grid Code compliant declaration for a GPI but does not give eight hours notice.

1.3.3 Loading GPI & 1.3.4 De-Loading GPI
Endesa Ireland welcomes the addition of a tolerance factor to account for high system frequency.

1.4.1 Secondary Fuel GPI
Endesa Ireland does not consider it appropriate to impose a harmonised system charge when the secondary fuel requirements are not harmonised. Currently the generator's obligations in Ireland and Northern Ireland are different.

2.2.2 Proposed Short Notice Declarations Charges
Endesa Ireland is opposed to the increase of SND charge from €40/MW to €70/MW as this will significantly increase costs incurred by generators, without any additional costs to be recovered by the system operators. Endesa Ireland would ask the SOs or RAs to publish the formula and/or empirical basis for this charge. In particular, if the charge is based on a 400MW unit, it is not appropriate to levy the charge to all generators on this basis.

Endesa Ireland makes the point that the rate increase will mostly affect units that are two-shifted and/or have intermittent running regimes, rather than the large baseload units, which impose the most costs to the system when they trip or become unavailable.

In addition, Endesa Ireland calls on the SOs to publish their policies for unilaterally declaring units unavailable, as SND charges can be incurred by generators as a result of such a declaration of unavailability by the SOs.

2.2.1 Trip Charge
The TSOs propose to maintain last year's trip charges. Endesa Ireland considers that this mechanism over-penalises generators as they are also subject to a short-notice declaration charge. We continue to advocate a single charge for the short-notice declaration, which increases transparency and reduces complexity.

3.1 Proposed Reporting
Endesa Ireland supports the TSO's proposal to publish information monthly on OSC revenue, including trip charges, SND charges and revenue levied for GPIs.

<u>Harmonised Ancillary Services Consultation Paper</u>

2.2.1 Reduced Time to Synchronise
Endesa Ireland requests details of the criteria for qualifying for this payment and a proposal as to the costs recoverable by those providing the service. In the event that the TSO is to negotiate contracts of different values with different generators it is proposed that an auction for the provision of this service should be held.

Endesa Ireland would highlight that the penalties the TSOs propose a generator would incur for failure to synchronise (i.e. payment not made for reduced time to synchronise, failure to synchronise dispatch instruction and no payment of start up cost) should be borne in mind when setting a price for this Ancillary Service, otherwise the provision of this service will not be commercially attractive to generators. .

2.2.2 Flexible Multimode Operation
Endesa Ireland considers that it is not sufficiently clear how dual CCGT/OCGT bids would be treated in the market and the impact they may have on SMP pricing and the constraints budget. It seems as though this proposal has implications beyond the realm of Ancillary Services. The current information, that incremental costs plus an additional payment, be it a percentage of the final payment or fixed cost each time the service is dispatched depending on the final technical details and costs contracted with the generating unit, is insufficient for analysis.

Endesa Ireland believes this subject requires further explanation by the TSOs followed by consultation with industry on the detailed proposal.

2.2.3 Lower Minimum Generation

Endesa Ireland rejects the suggestion that market conditions may incentivise declaring a unit to the lowest possible minimum generation on the basis that a unit may not be eligible for operating reserve payments unless it is exporting at a certain level. In addition, by declaring a lower minimum stable generation than the GPI minimum, a unit will incur higher loading rate charges under the proposed regime. The 'Actual Loading Rate Tolerance (ALR_TOL)' will be lower with a lower declared minimum, while the target GPI loading rates are based on the higher GPI minimum. Thus the unit will have a higher GPI target and will have a lower tolerance to achieve this target by declaring minimum stable generation below the GPI minimum.

Endesa Ireland considers that as this would be a real service provided to the system, generators should receive a payment beyond merely recovering costs incurred to improve on their Grid Code requirement. Endesa Ireland requests details on the payment regime to be introduced to incentivise generators to declare a minimum stable generation below the GPI minimum, and also requests clarification on whether generators will have to pay for testing to prove that they can operate at this lower level.

2.2.4 Synchronous Compensation

Endesa Ireland does not believe the level of payment proposed, that is incremental costs such as imported energy and additional maintenance costs along with harmonised reactive power payments, is commercially attractive to generators.

3.3 Proposed Harmonised Ancillary Service Rates

Endesa Ireland is disappointed by the TSOs' proposal to maintain last year's tariff rates despite the RA's decision[1] in SEM-10-001 in which it was stated that "AS allowances should increase proportionally in anticipation to a need for higher levels of service". Endesa Ireland considers that in order to ensure a safe and reliable transmission system an incentive for the provision of Ancillary Services is essential.

Endesa Ireland considers that failing to increase the AS rates would introduce increased financial and regulatory uncertainty for generators who may have made investment decisions based on projected increases in AS payments as further signalled by Regulatory Authorities in SEM-10-001 and the higher levels of AS services that the TSOs have indicated are required to support the transmission system. Failure to increase these rates seems to be contrary to the Ancillary Services Design Guidelines set out in SEM 08–128[2] which asserts that "Service providers should be able to reasonably predict their annual income from providing AS". Endesa Ireland considers that Ancillary Services Rates should at the very least be adjusted to allow for CPI.

[1] SEM - 10 – 001, "Harmonised All- Island Ancillary Services Rates & Other Charges", Decision Paper 4th January 2010

[2] SEM - 08 – 128, "Harmonised Ancillary Services, Other System Payments & System Charges

Endesa Ireland has made significant investment in enabling remote access at our Rhode and Tawnaghmore stations which facilitates the provision of Ancillary Services from these units to the electricity grid. This investment decision was partially based on a projected increase in AS rates.

Furthermore, we believe that the current rates for AS do not accurately reflect the costs of providing the services. There is no evidence that the TSOs have taken actual costs of provision into account. Rather, these rates seem to be scaled to ensure the payments fall within the cap set by the RAs for Ancillary Service payments. Endesa Ireland considers that service providers should receive market rates for the provision of Ancillary Services. The development of a competitive Ancillary Service market would ensure that service providers are paid market rates and that services were procured in the most economic manner. Endesa Ireland strongly encourages the RAs to move towards a competitive Ancillary Services market.

As discussed in the previous Harmonised Ancillary Services Consultation, Endesa Ireland submits that with an increased level of wind, slower reserve categories (TOR2, RR) become more important and this should be reflected in the payment rates. The RAs indicated in SEM-10-001 that this payment would be reviewed in the future, it is submitted that this should be addressed for 2011/12.

4.1 AS Allowance

If there is to be a harmonised All-Island TUoS charge then Endesa Ireland considers that the SEM Committee should approve the Ancillary Services allowance for both jurisdictions. Although Option 2 has some merits in this regard, Endesa Ireland wonders whether the 3:1 ratio is excessively strict. The TSOs should both aim to reduce their spending on Ancillary Services to what is physically necessary, rather than what meets the 3:1 parameter.

Until the north-south tie line is completed, it is unlikely that Ancillary Services can be provided on a fully competitive cross-jurisdictional basis. It must also be noted in this regard that the Grid Codes and operational requirements of the two jurisdictions are not the same in all respects, eg secondary fuel, minimum fuel, start times. It is submitted that a single allowance would be appropriate were these differences and limitations in cross-jurisdictional sourcing of Ancillary Services addressed.

However, Endesa Ireland would welcome further exploration of the single allowance mechanism proposed in Option 2. In particular, we would welcome further detail on the calculation behind the 3:1 ratio and how is over or under spend by one or both TSOs is to be recovered.

Endesa Ireland would also welcome clarification as to whether a single all-island pot is possible under the current legislation/licensing, as the obligations placed on TSOs in respect of Ancillary Services may be limited to a single jurisdiction.

endesaireland

4.2 AS Reporting
Endesa Ireland supports the SO's proposal to publish a monthly report detailing HAS expenditure.

From a transparency point of view Endesa Ireland considers that the TSOs should report on the level of services contracted with each AS Service Provider. It is difficult to see how there can be confidentiality issues around such reporting in circumstances where customers are ultimately paying for these services. As generator technical offer data is available to all market participants, Endesa Ireland considers it is appropriate for AS data to be published.

energygeneration
INFRASTRUCTURE

Response to 'Harmonised Ancillary Services Consultation'

Tariff Year October 1st 2011 – September 30th 2012' of 18th April 2011

Dated 23rd May 2011

On April 18th 2011 the Transmission System Operators (TSOs) issued a consultation paper containing the proposed rates for the forthcoming tariff year beginning 1st October 2011 for Ancillary Services and Other System Charges. The paper also contains proposals for new and modified ancillary services.

The TSOs have requested respondents to this consultation paper to provide responses, views and comments on a number of proposals.

This submission is the response of Energy Generation Infrastructure [EGI] to the TSO proposals. Our comments on each section of the consultation document are as follows (responses are aligned with the sections and sub-sections of the document):

2.1 Existing Services

We agree that the TSOs should continue with the existing AS services that have been in place.

2.2 New Services

The outage of Turlough Hill has highlighted the importance of pumped storage in reducing constraints costs and providing ancillary services at low cost. It has also shown that pumped storage receives much lower payment for its services than the value of these services to the electricity supply industry and to electricity customers. The Turlough Hill outage is likely to increase the cost of electricity in Ireland by between €100 and €200 million over the duration of the outage.

In proposing new ancillary services for the next year, the TSOs are attempting to deal with and compensate for the Turlough Hill outage. It is likely that compensatory services will only meet part of the need and at a higher cost than could have been provided by Turlough Hill.

The types of services which pumped storage can provide are likely to increase in importance as wind penetration increases. These services include fast starting; fast load changing; demand side management when pumping; provision of reactive power and black starting. Advances in pumped storage technology with variable speed pumping and generating offer the features of instantaneous active power injection/absorption (thus enhancing frequency control) together with continuous power flow and voltage control during grid disturbances. Furthermore, pumped storage can be arranged to provide high inertia, a requirement that has been identified in studies of the system impacts of high wind. In addition, pumped storage reduces day-time prices and improves price stability while also providing a market and improving prices for wind power and other generators at night.

In the medium to longer term, it is questionable whether the electricity supply industry should be so dependent on one pumped storage plant. It is also questionable whether suppressing the payments to pumped storage plants ultimately benefits customers. There is a need and a potential for increasing pumped storage in Ireland but this need will only be met if the services provided are paid for at a fair rate. The current treatment of pumped storage in the SEM and the rates of compensation paid for the ancillary services and the reduction in constraints and average SMP that pumped storage provides will not attract new capacity which would ultimately result in lower electricity prices and improved system operational efficiencies.

The services proposed by the TSOs are a stopgap measure. While we support the initiatives of the TSOs we look forward to the publication of the forthcoming report on the cost and other impacts of the Renewables Studies and to the elucidation of the TSOs future vision for development of ancillary services.

We agree that new ancillary services payments in the short term should only be made to the extent that customer's benefit, but we also believe that in the longer term payments should be more aligned to the customer benefits which can only be delivered at lowest cost by pumped storage.

2.2.1 Reduced Time To Synchronise

The TSOs propose to put in place unit-specific provisions for payment for reduced time to synchronise, to be paid for on an as-used basis.

We agree that mobilising the capabilities of plants which could start faster would be beneficial to the system, particularly where such mobilisation requires only minor plant or operational modifications. However where reducing the Time to Synchronise includes significant operational changes such as keeping plant warm, a detailed cost-benefit analysis should be carried out in order to demonstrate that overall costs will reduce.

Time to synchronise is highly dependent on generation technology with pumped storage offering one of the fastest starts. Pumped storage offers the added advantage of increasing night time demand, thereby allowing some CCGT plants to remain synchronised and consequently avoiding large CCGT start up costs.

Instead of this targeted approach to mobilising the capabilities of plants which could start faster, would it not be more equitable in the long run to reward all plants which offer fast start up? We accept that a short term solution may be required to alleviate the current high dispatch balancing costs but the medium to long term arrangements for fast start incentives should encourage generators to provide the least cost solution. This may simply be a fast start payment for any generator who can synchronise in less than the time mandated by the grid code, with a scale of higher payments for shorter start times.

The harmonised ancillary service arrangements penalise failure to perform to grid code requirements but do not reward performance that is better than required by the grid code and that could reduce system costs. Since the capacity payment mechanism does not discriminate between plants on performance grounds, the AS arrangements are the only tool available for the regulatory authorities and the TSOs to influence plant characteristics that can support system operation and reduce electricity costs.

We believe that all plants that have reduced time to synchronise (compared with grid code requirements) should be rewarded to the extent that this characteristic reduces system costs.

2.2.2 Flexible Multimode Operation

This proposed service is particular to certain combined cycle plants that can operate in open cycle mode.

We would like the TSOs to publish cost-benefit analyses to show how payments for this service would be derived. Market participants and potential new entrants could then have a basis for identifying opportunities to supply alternative means of providing the same benefit at lower cost.

In general, we believe that the TSOs should identify their needs and the economic benefit of meeting these needs.

2.2.3 Lower Minimum Generation

The restricted operating range of much of the newer CCGT capacity in Ireland coupled with the planned retirement of older conventional capacity will lead to an increasingly inflexible system at a time when greater flexibility is needed.

Pumped storage provides the ultimate in operating flexibility, being able to operate spinning in air with zero output (but contributing to system inertia and providing synchronous compensation) while ready to generate full output within tens of seconds.

As with flexible multi-mode operation, we believe that the TSOs should determine the system value of lower minimum generation compared with grid code requirements and should then make a portion of this value available to the generators who can deliver this service at the lowest cost.

2.2.4 Synchronous Compensation

While this service can only be offered by a few existing generators, we would welcome the TSO's publication of the system value of this mode of operation so that it might be offered by any new plants (or modified existing plants).

3.1 AS ALLOWANCE

We welcome the proposed increase in AS Allowance for 2011 -12. We note that this is partly caused by the outage of Turlough Hill.

We suggest that the TSOs and the Regulatory Authorities adopt a pro-active approach to identifying and evaluating ancillary services and plant performance characteristics that would reduce system costs and, ultimately, customer costs. By offering benefit-related payments for such services and plant characteristics, a signal would be provided to the market to deliver these services and characteristics.

3.2 Proposed Exchange Rate

We have no comment.

3.3 Proposed Harmonised Rates

The proposed AS rates, coupled with non-discrimination between technology types or performance in the Capacity Payment Mechanism, do not provide incentives for delivery of the required future services for system operation with high wind penetration.

We suggest that the value of improved plant operating performance (beyond the minimum required by the grid code) be evaluated and that this should be the basis for AS payments.

4.1 Single AS Allowance

We have no comment.

4.2 AS Reporting

We welcome the plans for greater transparency and reporting on AS expenditure reporting.

We note that there are confidentiality issues relating to the level of contracted AS services. We would urge the greatest possible transparency in relation to the providers and level of services.

Other issues

We suggest that the Regulatory Authorities initiate a work programme to evaluate AS requirements which will allow secure and cost-effective system operation with high levels of intermittent generation in 2020 and beyond. This evaluation should identify the level of existing and possibly new services (such as inertia) that may be required, the economic benefit of these services (or the economic cost of their absence) and a plan on how to mobilise such services.

It is important to reiterate that the outage of Ireland's only pumped storage plant, Turlough Hill, has clearly demonstrated the market and operational benefits offered by pumped storage. To reduce dependency on one plant and to avoid similar reoccurrences we suggest that the provision of additional pumped storage should be considered.

The planning/financing/construction cycle for new plant, particularly generation plant, is long; if new services are required for 2020, they should be defined within the next year so that the required project implementation to meet system needs can proceed.

Energy International

ESB Energy International Limited
Cúirt Stiabhna
18-21 Faiche Stiabhna
Baile Átha Cliath 2
Éire
Fón: +353 (0) 1 7037229
Facs: +353 (0) 1 7038073
www.esb.ie

ESB Energy International Limited
Stephen Court
18-21 St. Stephen's Green
Dublin 2
Ireland
Tel: +353 (0) 1 7037229
Fax: +353 (0) 1 7038073
www.esb.ie

Friday, 27 May 2011

Ref:
Harmonised Ancillary Services Consultation Tariff Year 1st October 2011 to 30th September 2012

Harmonised Other System Charges Consultation Tariff Year 1st October 2011 to 30th September 2012

Dear Vivienne and David,

I attach ESB International (ESBI) responses to the above consultations

Kind Regards,

Gill Bradley
Front Office
ESB Energy International

ESB Energy International

Harmonised Ancillary Services Consultation Tariff Year 1st October 2011 to 30th September 2012

1.1 Introduction

ESBI appreciates the opportunity to comment on this consultation paper. We have no objection to all or part of it being published by the Regulatory Authorities (RAs). This response is submitted on behalf of ESB Energy International, Independent Generation.

ESBI has carefully reviewed the options contained in the Consultation Harmonised Ancillary Services Consultation Tariff year 1st October 2011 – 30th September 201. Our comments on the paper are set out below.

2.2 New AS Services

The consultation states that "The services will be paid for based on their utilisation and will not be availability based payments"

ESBI consider that a move away from availability based payments will be a disincentive to invest as it will become increasingly difficult for service providers to cover fixed costs of an asset.

2.21 Reduced Time to Synchronise

Coolkeeragh would be willing to offer a reduced time to synchronise if conditions permit but would not wish to be obligated to do so.

Coolkeeragh has a four hour minimum down time due to differential cooling on the compressor which can lead to a rub on the rear sections. This has been foregone in the past, particularly following trips where the system is under strain.

There is a history of Coolkeeragh looking to provide assistance to the system when it can and this has been done on a voluntary basis depending on plant conditions at the time. Coolkeeragh would look to continue this existing precedent.

The risk of being issued a fail to synchronise penalty or loss of start payment is a major disincentive to committing to a reduced time to synchronise.

2.2.2 Flexible Multimode Operation

Open cycle operation of a CCGT plant (assuming the relevant environmental consents can be obtained) should be remunerated under ancillary services but only requested for very short term system support or in emergency events. This running mode is not as per the initial plant design and would increase the likelihood of unplanned outages. If open cycle running were to become more frequent, market mechanisms would need to be redesigned to have plants bid in both open and close cycle modes.

The Coolkeeragh CCGT has the capability of operating in OCGT mode for a restricted time as there is an increased strain on components such as the by-pass valves and the condenser. Monitoring and use of this limited time frame would have to be considered by the TSO.

Reverting from OCGT to CCGT mode can take some time and require a reduction in gas turbine load in order to match the steam temperatures required. This could result in an inability to meet the MSQ for a period of time following the completion of open cycle running. The consequences of this require some consideration.

The emissions per MWhr generated are increased when operating in open cycle mode and the cooling water outlet temperature from the condenser is also considerably higher. Both of these issues would require consultation with the environment protection agencies and approval of variations in the relevant consents. (These consents are in place for the fast wind back facility but not currently for 'normal' operation).

ESBI queries how the TSO will remunerate a generator for operating in open cycle mode and details of how incentive payments are awarded. Additionally if a unit has switched to open cycle mode on request of TSO will that plant be liable for same "performance incentives" when it is operating in combined cycle mode? The consultation only indicates that a payment will not be made for failing to respond as expected.

2.2.3 Lower Minimum Generation

Coolkeeragh is not in a position to provide a lower than declared minimum generation.

2.2.4 Synchronous Compensation

The Coolkeeragh open cycle gas turbine already provides this service through the Generating Unit Agreement with NIE PPB.

3.2 Proposed Exchange Rate

ESBI welcomes the proposal to maintain the current methodology for calculation of exchange rate which is fixed for the tariff year and based on forward fx rates and is consistent with the approach used in the SEM. ESBI would expect additional costs associated with IT system changes required to facilitate an exchange rate based on a 5 day average , or daily, monthly or weekly rates.

3.3 Proposed Harmonised Rates

ESBI agrees with the TSO that rates remain unchanged for the 2011/2012. ESBI feels some generators would benefit from a longer term indication of rates to allow better prediction of future income and more prudent budgeting.

4.1 AS Allowance

ESBI agree that AS allowances be eventually transitioned into a single all island allowance which is in line with the Capacity Payment Mechanism in the SEM. It is ESBI's view is that harmonised arrangements should exist for both remunerating and incentivising generators for providing similar services regardless of jurisdiction.

This concept is inline with the original harmonisation aim to remove any potential distortion caused by differing payment rates and mechanisms.

4.2 AS Reporting

ESBI welcomes the TSO's proposal to publish the HAS expenditure on a monthly basis and agree that this will improve transparency.

We note that while black start outturn is reported on an island basis, under HAS, NI Generators with black start capability are still not remunerated for providing this service. This contradicts an original HAS aim: to ensure services are procured on a non discriminatory all island basis.

5.0 Additional Comments

Currently wind farms are requested to sign the same contract for the provision of ancillary services as thermal units. The levels of liability provided for in the contract is far in excess of the value of the contract to wind energy producers and is more in line with the income received by large thermal units. Also the contract implies that there are penalties for the non-provision of the ancillary service even though in most cases this is beyond the control of wind energy producers.

In light of this we recommend that wind farms be offered a separate contact for the provision of ancillary services which better reflects the economic and physical reality of the wind industry.

ESB PG Response to Harmonised Ancillary Services Consultation of 18th April 2011.

ESB PG is pleased to submit its response to the consultation on Harmonised Ancillary Services Consultation for the Tariff Year 1st October 2011 to 30th September 2012.

In the executive summary, it is stated that the SOs are formulating a position on the current and future needs of the system as well as a comprehensive plan of actions to systematically address the challenges involved. While this is very welcome, it is difficult to look at the proposed AS in a meaningful manner in the absence of knowledge about the direction of the future AS and required system support and details of the associated compensation mechanism. Without this, investment decisions cannot be made and particularly due to the long lead times in this industry, investment decisions may not be made in time to provide the required system support. For all these reasons, the discussion around the medium term requirements of the transmission system needs to commence with the market participants who will be providing these services soonest. It is noted that an Industry presentation on this topic was due in April 2011 and that now at the end of May, this has still not taken place.

It is important to recognise that there are a number of inter related aspects to the Single Electricity Market and thus any change to one aspect needs to be looked at in the context of the overall direction of the market. Thus it is disappointing that currently there are a number of interrelated aspects of the market being consulted on separately (HAS, CPM Medium Term Review, BNE, Scheduling and Dispatch). ESBPG is strongly of the view that a more holistic approach to the market should be taken for the benefit of all participants.

Section 2.2 – New AS Services

In the paper, it is proposed that any of the new services will be paid for on the basis of utilisation rather than availability. ESBPG believes that this is not appropriate in all cases as plant modifications may be required and without guaranteed utilisation of the services, these costs may not be recouped. It also adds risk and makes the provision of the services less attractive.

Section 2.2.1 – Reduced Time to Synchronise

The consultation proposes to reward generating units which have a shorter time to synchronise than the Grid Code requirements. ESBPG believes that these payments should be made to all generating units which have shorter times to synchronisise and not just those which improve as a result of the new AS. The service provided by existing plant has real value and should be rewarded equally.

Improvements in time to synchronise can be made in a number of different ways but all carry some level of increased risk which would have to be allowed for inclusion in the incremental costs of service provision. While the scale of the penalty for non performance is laid out, the scale of the incentive payment is not and this would need to be published prior to any significant work being carried out by generators. Any investment will have to be funded based on multi year expectations which is not possible given no long term vision.

Section 2.2.2 – Flexible Multi-mode operation

As stated in the consultation paper, CCGT plant operating as OCGT plant is less efficient and requires increased maintenance and these incremental costs would be remunerated. Additional (partial) start costs would also need to be included. There are also increased emissions which may affect EPA licence conditions.

While it is welcomed that the proposal is purely within day and that the market schedule would remain unchanged, it is unlikely to be particularly attractive. If generating plant is in merit, and thus constrained off to operate as an OCGT, there is increased risk which would need to be factored into either the COD, incentive payment or the market engine (in that availability when operating as OCGT would not affect MSQ in the event of a trip). If the plant was not in merit, running constrained as an OCGT is unlikely to be attractive, although again this would depend on the incentive payment.

Section 2.2.3 – Lower Minimum Generation

ESBPG is of the view that any plant which has a min gen lower than the Grid Code requirement should receive an incentive payment (in a similar manner to the min gen GPI for higher than Grid Code requirement). This would have the effect of being a fair transparent system while incentivising plant to reduce minimum generation. The paper states that the status quo is an option as the market already incentivises lower min gen, ESBPG disagrees with this statement as it is unclear if this holds true for all plants.

Section 2.2.4 – Synchronous Compensation

ESBPG welcome this proposed new service and agree with the proposed design for units which were designed to provide synchronous compensation. However, units not specifically designed for synchronous compensation are not easily converted and those that are converted may suffer from lifetime reduction. The commercial signal would need to be sufficient to incentivise existing generators to modify and retrofit this capability. As synchronous compensation has a value, all service providers should receive the same compensation. The effect on Replacement Reserve Payments would also need to be clarified. It may benefit the SO's to take a low min gen as equivalent.

Section 3.2 Proposed Exchange Rate

No Comment

Section 4.1 – AS Allowance

ESBPG is of the opinion that the most efficient option, the context of a Single electricity Market and Harmonised Ancillary Services is option 2, optimising the single allowance.

Section 4.2 Reporting.

ESBPG believes that reports should be restricted to market participants unless there is a higher imperative dictating wider release of the data.

General Comments

The expected reserve calculation does not take account of the deadband. ESB PG believes that this calculation should be changed to included either the Grid Code minimum, the derogated value or the deadband setting requested by EirGrid.

ESBPG believes that the reserve payments should be increased by a factor of 2 for provision of reserve over and above the Grid Code requirements. This takes account of the importance of reserve provision particularly due to the changing generation mix and the facilitation of wind.

IWEA response to the Harmonised Ancillary Services Consultation

27 May 2011

The Irish Wind Energy Association (IWEA) welcomes the opportunity to respond to the Joint Regulatory Authority consultation on Harmonised Ancillary Services and Other System Charges.

The consultation outlines some changes to be made to ancillary payments and other system charges. IWEA welcomes the review of these items and believes that any changes introduced should be designed to increase system flexibility and to ensure an appropriate generation mix. The flexibility of thermal generation is an essential component of an electricity system which aims to have high levels of renewable generation, in particular wind.

IWEA would like to note however that the wider system needs an overhaul to make sure the correct plant is being incentivized and Ancillary Service payments have an important role to play in this. It is important that the wider system needs are taken into consideration and that a market value is placed on the services being provided. Following on from the Facilitation of Renewables studies, the importance of technical parameters such as system inertia has been highlighted and this should also be reflected in ancillary service payments.

IWEA has concerns with the way in which Ancillary Services are funded. Whilst there is an understanding that HAS and Capacity Payment Mechanism (CPM) are serving different purposes and so should be kept separated, the growing need for AS should not be funded by a reduction in the capacity payment pot. Improved flexibility and better generator performance will reduce system generation, constraint and market costs. With the current outage of Turlough Hill there has been an increase in the constraints payments that have had to be made to date. The introduction of more flexible plant will help to reduce these constraints cost. It is also anticipated that increased amounts of renewable generation will reduce the average energy price in SEM. IWEA believes that with appropriate incentivisation of the TSOs these factors will offset some of the costs of additional ancillary services without requiring changes to the size of the capacity pot. It is also essential that revenues from both capacity and Ancillary Services are sufficiently stable to ensure that their inclusion will be accepted by finance providers. It is essential that the overall framework is assessed to ensure that flexible generators are not disadvantaged by the proposed changes and that the provision of capacity is still regarded as something of value.

As a consequence of Regulation EU 838/2010 on the inter-transmission system operator compensation mechanism, to the extent that the North-South interconnector imposes additional system losses or additional infrastructure costs as a consequence of facilitating cross Border electricity flows, these costs should be recoverable via the ITC mechanism. While not directly related to the issue of Ancillary Services, we believe it is an issue that should be investigated by the RAs with the objective of avoiding unnecessary costs being imposed on the SEM and ultimately on customers.

NIE Energy Limited
Power Procurement Business (PPB)

Harmonised Ancillary Services and Harmonised Other System Charges

Consultation Papers

27th May 2011

Response by NIE Energy (PPB)

NIE energy

Harmonised Ancillary Services and Other System Charges Consultation Papers

Harmonised Ancillary Services

Introduction

NIE Energy (PPB) welcomes the opportunity to respond to the Harmonised Ancillary Services and Other System Charges Consultation papers. PPB would also like to express its appreciation for the work completed by SONI, over the last year, as part of the review of the HAS arrangements, including OC11 Grid Code, and in particular the empirical analysis of the historical performance of generating units during Frequency Events. This work has led to a greater understanding of the performance of generating units connected to the system, which will ultimately help in the development of the system to facilitate the connection of renewable generation. It is important that parties continue to work together to identify the technical challenges of accommodating an increase in renewable generation and the appropriate commercial arrangements for Service Providers who can offer the System Operator Ancillary Services which will ensure the System can be operated in secure and efficient manner.

Section A focuses on the Harmonised Ancillary Services Consultation Paper and Section B focuses on the Other System Charges Consultation Paper.

Section A - Harmonised Ancillary Services

A1 Existing AS Services

PPB agree that it is appropriate that the cost to the end consumer is appropriately managed and the System Operators should investigate all options to reduce Dispatch Balancing or "Constraint Costs". However it is extremely important that the System Operators consider the full implications of their decisions and whether or not any decision would discriminate against or unduly prefer any person or class or classes of persons. In the facilitation of renewables the apportionment of risk to Service Providers must not increase without there also being an equitable increase in reward for these Service Providers.

A recent decision by the System Operators to reduce the level of minimum reserve requirement from 81% to 75% of the largest single infeed (LSI) highlights an issue in relation to the overall governance arrangements, which do not currently provide agreed criteria for making these decisions. In the Harmonised Ancillary Services and Other System Charges Information Note to Service Providers it stated that "there will be an increased level of services required in the 2010/2011 tariff year due to the increase in the largest infeed on the system"- however part way through the year the System Operators actually reduced the level of services required. In Section 5.4.1 of the SONI Transmission Summary Report it states that the number of Frequency Excursions has generally increased since 1989 and the report goes on to state that "there is an increased probability of frequency events occurring". In the first seven months of 2010/11 there have been three Frequency Events. If, as a direct result of this decision, the annual number of Frequency Events increases, the apportionment of risk to Service Providers will have increased without an equitable increase in revenue for these Service Providers. In Great Britain the Electrical Safety, Quality and Continuity (Amendment) Regulations 2006, Part IV clause 27 (commonly referred to as the ESQCR) requires that system frequency shall not vary more than one per cent above or below the declared frequency of 50Hz save in "exceptional circumstances". The CEGB took the phrase "exceptional circumstances", which has been adopted by National Grid, to mean that the system frequency shall not transgress outside the statutory limits of **50Hz +/- 0.5Hz more than four times a year.** There may be a case for a review of the Transmission and Distribution System Security and Planning Standards to ensure that criteria are established for changing levels of Operating Reserve.

It is important to recognise that the provision of Operating Reserve can:

1. Reduce plant efficiency;
2. cause wear and tear and increases maintenance costs;
3. reduces plant life;
4. affect the normal operating characteristics of the unit.
5. exposes Service Provider to Operating Reserve and Other System Charges

It is inappropriate to expect Service Providers to provide Operating Reserve for an unlimited number of Frequency Events in the year. One way of dealing with this concern would be to include a review trigger in the design of the Reserve Payments which is triggered if the number of Frequency Events experienced in any given year is greater than four – which represents the CEGB interpretation of “exceptional circumstances” In this situation the Reserve Rates could be increased for the remainder of the year. This design change would appropriately compensates Service Providers for providing Reserve to the System more regularly than originally assessed – whilst also providing a commercial incentive for the System Operator to maintain the minimum reserve requirements at a level whereby the System Frequency only transgresses below 49.5Hz in “exceptional circumstances”.

A1.1 Operating Reserve Products

The current long term nature of the HAS Agreement, with no right for a Service Provider to revise the level of contracted reserve, results in Service Providers taking a prudent position having considered the commercial risks of the non-performance. PPB believe, as outlined in our response last year, that the TSO should consider procuring short-term reserve products from Service Providers which are over and above the long term reserve products which are currently contracted. This would ensure that the System Operators can optimise the economic efficiency of the Ancillary Services market.

A1.2 Reactive Power Products

The current arrangements for Reactive Power do not compensate a Service Provider for the full amount of Reactive Power, which is provided to the system, due to the fact that the Reactive Power Capability is based on the generators capability at full load. PPB maintain that this is not the correct approach as Service Providers should be paid based on the actual amount of Reactive Power which they provide to the system during each Trading Period. If the Generator was not available, it is likely that the full amount of Reactive Power would need to be provided from another item of plant or apparatus. Reflective pricing would also enable the Regulator to undertake a more accurate cost/benefit analysis of the provision of Reactive Power from different sources (generator units or transmission assets). NIE T&D have identified in their Capital Investment Requirements for RP5 that they intend to install 300MVAr of reactive power compensation representing a capital investment of £28million. The total annual reactive power payment, for the Island of Ireland, is circa £8.4million. Consideration should be given to tendering for Reactive Power Capability from any plant or apparatus, which can generate or absorb Reactive Power (including Static Compensation equipment).

A1.3 Black Start

NI generators are entitled to payments for the provision of Black Start services however there has been no development of the contractual arrangements for these services. PPB believe that this must be addressed and that the System Operator in

Northern Ireland should develop and publish a draft pro-forma Schedule for the consideration of Service Providers in Northern Ireland.

A2.0 New Services

PPB is encouraged by the work, which is being undertaken by the TSOs, to review the system related issues and barriers to achieving the targets which have been set by the Governments for renewable generation.

PPB welcomes the System Operators decision to increase the range of Ancillary Services. However it is important that the commercial arrangements for generating units, which provide these new Ancillary Services, provide the owners of the assets with appropriate investment returns. PPB are concerned that the commercial arrangements which are being proposed by the System Operators transfer all of the risk to the Service Providers and do not take cognisance of the risks associated with offering the services. If the System Operators are seeking solutions to the operational challenges of facilitating renewable generation, then investors must be appropriately rewarded for providing ancillary services. The main issues with the current proposals are:

- The System Operators, state the new Ancillary Services will be paid only when utilised which is a concern as there is no guarantee that they will ever be used however before entering into a contract for the new Ancillary Services there are costs which may be incurred by a Service Provider, such as:
    - Costs for testing the technical capability of the generating unit prior to agreeing to the new Ancillary Service;
    - capital investment costs, which may be necessary in order to provide the new Ancillary Service;
    - legal and commercial costs associated with negotiating the HASA Schedules.
    - any costs associated with upgrading existing commercial settlement systems

- Service Providers must be able to recover any loss in opportunity costs associated with providing an Ancillary Service. For example, if a Generating Unit is dispatched below its normal Minimum Generation value and it cannot provide Operating Reserve below its normal Minimum Generation value then the Service Provider should be paid the Operating Reserve revenue which it would have realised at the normal Minimum Generation value. Therefore PPB believes that incremental costs must include any loss in opportunity costs.

- The proposed rates are based on the incremental cost of providing the Ancillary Service. However in providing the Ancillary Service it is likely that a Service Provider will be operating the Generating Unit outside its normal operating characteristics and therefore will expose the Service Provider to additional commercial risk due to increased uncertainty of operating the Generating Unit under the revised operating characteristics. In order to incentivise Service Providers to contract for the new Ancillary Services the rates must be sufficient to cover known costs as well as an appropriate level of return to compensate the Service Provider for the additional commercial and operational risks.

- The existing HAS agreements are long term arrangements, with limited rights for a Service Provider to terminate or amend its obligations to provide an Ancillary Service. PPB believe that the Service Providers need to consider mechanisms for Service Providers to review and amend its operating parameters and the rates associated with providing the new Ancillary Service. For example, the Service Provider may not know its true maintenance costs until after it has had some experience in providing the service.

<u>A3.0 Ancillary Services Rates</u>

A3.1 <u>Exchange Rates</u>

PPB would support the proposal outlined in Option 2 in relation to Exchange Rates (i.e. Exchange Rate based on a 5 day average) as this removes some of the market volatility risk. PPB would however not support Option 3 as it would introduce an additional variable in forecasting annual HAS revenues.

A3.2 <u>Propose Harmonised AS Rates</u>

PPB is disappointed that the System Operators have not published a more comprehensive summary of their analysis. The Harmonised AS Rates have been maintained at the same level since the introduction of the HAS arrangements. During this period there has been significant changes in inflation in the UK (affecting costs) as well as movements in prices in the underlying commodity markets. The System Operators have not indicated how these changes impact on the cost of providing the Ancillary Services which should be reflected in the Rates.

<u>A4.0 AS Allowance and Reporting</u>

A4.1 <u>Single AS Allowance</u>

There is insufficient analysis to support Option 2. PPB therefore support maintaining the Status Quo.

A4.2 <u>AS Reporting</u>
PPB welcomes the proposal to publish HAS expenditure on a monthly basis in line with the HAS settlement process as this information improves the transparency of the HAS arrangements.

Section B Harmonised Other System Charges

B 1. Proposed OSC Developments

B1.1 Loading and De-loading GPIs

PPB welcomes the change in the formulae for the GPIs associated with Loading and De-Loading. However, based on past events, in the case of the Loading GPI the proposed tolerance does not protect PPB generating units from charges if the frequency is above 50.05Hz. PPB would suggest that the tolerance in increased as the generating is performing in a manner, which supports system security. It is therefore inappropriate for the generating unit to be penalised. Another way of dealing with this issue to calculate the minimum generation based on the actual system frequency and the governor droop of the generating unit.

B2.0 New Other System Charges

B2.1 Secondary Fuel GPI

PPB believe that a Secondary Fuel GPI should not be introduced in the absence of an Ancillary Service which provides the Service Provider with a revenue for maintaining the capability of operating on a Secondary Fuel – otherwise an unfair commercial arrangement is introduced which only penalises for non performance.

B3 Exchange Rates

PPB would support the proposal outlined in Option 2 in relation to Exchange Rates (i.e. Exchange Rate based on a 5 day average) as this removes some of the market volatility risk. PPB would however not support Option 3 as it would introduce an additional variable in forecasting annual HAS revenues.

Harmonised Ancillary Services Consultation
Tariff Year 1st October 2011 to 30th September 2012

A response by Synergen

1 Introduction

This paper is Synergen's response to the consultation paper "Harmonised Ancillary Services Consultation - Tariff Year 1st October 2011 to 30th September 2012" published by the TSOs on 18th April 2011. Synergen has no objection to this response being published.

This response concentrates on the issues associated with the introduction of new Ancillary Services, AS rates (including the treatment of FX risk) and AS allowances.

2 New Ancillary Services (Section 2.2)

Synergen is generally supportive of the introduction of new ancillary services. Such services need to reduce overall production costs whilst delivering additional flexibility to the TSOs to manage a system that has increasing levels of intermittent generation. The intention set out is thus to use new Ancillary Services to reduce the costs of dispatch balancing. Synergen supports this objective so long as:

1. The payment for services is transparent and equitable – all providers of the same service are rewarded on the same calculative basis;

2. The payments are fully cost reflective, i.e. the full additional costs incurred in providing the service are paid; and

3. All agreements are voluntary, and must remain so - these measures should not be seen as a step towards creating new (more onerous) Grid Code requirements.

Synergen thus supports the new voluntary paid services of reduced time to synchronise, and lower mingen.

Synergen does, however, have concerns (in both principle and detail) regarding the proposed flexible multimode operation rewards for some CCGT plant. The payments proposed are the incremental fuel costs and associated maintenance costs and it is not clear that such a reward basis would fully reflect all the costs that a CCGT may incur in operating in such a manner, and we consider that the calculation of the additional maintenance costs could be highly complex. Further, operating in OCGT mode could limit future plant output in order to ensure that the plant stayed within environmental constraint limits. If future (CCGT mode) running is foregone then the generator would lose infra-marginal rent and availability payments. It is not clear that the proposals allow for such costs to be recovered – and if they cannot be recovered then the attractiveness to CCGTs of providing this flexibility may be limited.

Furthermore, the intention of this new Ancillary Service is to minimise system balancing costs i.e. the cost of dispatch. Whilst Synergen understands that a CCGT in OCGT mode is potentially attractive as a despatch option for the TSOs; the optimality of such despatch can only be correctly assessed via the inclusion of this option within RCUC consistent with the high level design principles of the SEM. Furthermore, as a matter of design principle, the SEM's MSP market schedule (that minimises production costs) should include the costs available to the TSOs to dispatch i.e. the introduction of dual mode bidding into the SEM for CCGTs. Without dual mode bidding there would be distortions to SMP and issues related to BCoP compliance. In summary, Synergen rejects the proposal of flexible multimode operation rewards as presented in the TSOs' paper; rather this matter should be raised as a Modification Proposal within the T&SC regime.

3 Ancillary Services Rates (Section 3.2)

Synergen would support the continued use of a forward f/x rate, as there is no demonstrated benefit in changing the approach in this area. Furthermore, maintaining this approach also allows for existing systems and processes to be utilised, and thus avoids costs being incurred for both participants and the TSOs.

4 Ancillary Services Allowance and reporting (Sections 4.1 and 4.2)

The TSOs set out two options regarding future AS allowances. These were to (a) maintain the existing arrangements, whereby each jurisdiction manages its own outturn, and (b) optimise a single allowance across the SEM.

As the paper notes, AS not are required, nor can be delivered, on a pan-SEM basis, both for constraint, and other localised, reasons. Synergen believes that these jurisdictional differences still exist within the SEM, and thus it is not appropriate at this time to move to a single AS allowance across the SEM.

Synergen supports the AS reporting proposals set out in Section 4.2 of the consultation paper.

The Consumer Council

Elizabeth House,
116 Holywood Road,
Belfast BT4 1NY
Tel 028 9067 2488
Fax 028 9065 7701
e mail info@consumercouncil.org.uk

27 May 2011 Ref: PD20010847

Vivienne Price/David Carroll
SONI
Castlereagh House
12 Manse Road
Belfast
BT6 9RT

Dear Vivienne and David,

Re: Harmonised Ancillary Services 2011-2012

The Consumer Council is a Non-Departmental Public Body set up in legislation to safeguard the interests of all consumers, and particularly the vulnerable and disadvantaged. The Consumer Council is an independent organisation which operates to promote and protect the consumer interest.

We welcome the opportunity to respond to this consultation on harmonised ancillary services.

With fuel poverty levels in Northern Ireland at 44 per cent, many households are struggling to adequately heat their home, it is important that the regulatory structures look to minimise the cost of energy to consumers.

The Consumer Council expects the Regulatory Authorities and system operators to undertake robust analysis of all the options for harmonised ancillary services considered in the consultation. The Ancillary Services rates set for the tariff year 1st October 2011 to 30th September 2012 should represent the most beneficial option for all consumers both in terms of price and level of service.

The Consumer Council would like to ensure that the benefits to consumers will be seen equally in Northern Ireland and the Republic of Ireland with neither receiving greater benefits than the other.

The Consumer Council believes that any decision on exchange rate should take account of the final consumer. The option which will provide the greatest benefit for all consumers should be the option which is chosen. Benefits for consumers will ultimately be realised through lower final bills.

Given the potential volatility of exchange rates, consideration should be given to a methodology which takes account of daily exchange rate movements and therefore tracks current market conditions as accurately as possible. However there is also merit in considering a fixed rate at a set point in time. One downside to this approach is the potential for consumers in either jurisdiction to be paying more than they would have under a moving exchange rate system.

The Consumer Council would like the Regulator Authorities and the Transmission System Operators to keep in mind that its primary objective of any decision is to protect the consumer.

I hope that these comments are helpful and are given due consideration. Please contact me if you require any clarification.

Yours Sincerely,

Andrew Murray
Senior Consumer Affairs Officer

TYNAGH ENERGY
L I M I T E D

David Carroll
Eirgrid
The Oval
160 Shelbourne Road
Ballsbridge
Dublin 4

Vivienne Price
Castlereagh House
12 Manse Road
Belfast
BT6 9RT

Ref: TEL/EOD/11/101

27th May 2011

RE: HARMONISED ANCILLARY SERVICES CONSULTATION

Dear Vivienne and David,

The views of Tynagh Energy Limited ("Tynagh") in relation to the Harmonised Ancillary Services (HAS) consultation for the tariff year 01 October 2011 to 30 September 2012 are outlined below.

Overall Tynagh welcomes the proposed introduction of potential new HAS services as it demonstrates the willingness of the Transmission System Operator (TSO) to leverage the full extent of the technical capabilities of the existing generation fleet. However we are disappointed at the short term nature of the proposals that are outlined within this consultation paper. There is a definite need for the TSO's to deliver a comprehensive plan, including a cost benefit analysis, detailing how generator operational flexibility will be both incentivised and rewarded across the longer term.

Of the four new services that are proposed two can be considered to involve the production of active power, namely the flexible mutlimode operation of CCGTS and lower minimum generation services. It is stated that both of these services will not affect the market schedule. Any production of active power that is not represented within the market schedule will lead to additional constraint costs being incurred. Given that these new HAS services are intended to mitigate against constraint costs we must question whether these specific two services will actually deliver a greater value to system overall.

Any new HAS services should be valued according to the level of cost savings they ultimately deliver to the system. If a new service prevents an amount of constraint costs from being incurred, the TSO should be willing to pay up to that amount in order to procure that service.

Tynagh believes that the payment of incremental costs plus a percentage based incentive significantly under values the services being proposed, particularly when the risk of incursion of additional Generator Performance Incentive penalties or Failure to Synchronise penalties is being increased.

Although Tynagh accepts that these new services will be contracted on a unit specific basis, it would be appropriate, in the interests of maintaining transparency, for any rates that have been agreed on a bilateral basis to published by the TSO's in advance of the next tariff consultation period.

Tyangh is available to discuss these viewpoints, or any other aspect of this consultation, with the TSO's at any future point.

Yours sincerely

____

Eamonn O'Donoghue
Risk & Regulatory Manager

TYNAGH ENERGY LIMITED

The Crescent Building, Northwood Park, Santry, Dublin 9, IRELAND

TEL: +353 (0) 1 8578700 • **FAX:** +353 (0) 1 8578701

Viridian Power & Energy Limited

Energia House
62 New Forge Lane
Belfast
BT9 5NF

Tel: +44(0)28 9068 5941
Fax: +44(0)28 9068 5935

David Carroll
Eirgrid
The Oval
160 Shelbourne Road
Ballsbridge
Dublin 4

Vivienne Price
SONI
Castlereagh House
12 Manse Road
Belfast
BT6 9RT

27 May 2011

Dear David and Vivienne,

Harmonised ancillary services and other system charges for tariff year 2011-12

Thank you for this opportunity to respond to the above consultations.

Viridian Power and Energy (VPE) recognises that generator flexibility, controllability, and reliability will be increasingly important as more wind comes on the system and with the introduction of more non-synchronous interconnection like the East West Interconnector. Issues with grid infrastructure, planning and operations also need to be addressed through appropriate incentive structures to help reduce dispatch balancing costs.

From a thermal generator's perspective VPE would note that it is already experiencing onerous operating conditions associated with cycling to accommodate intermittent generation in a small islanded system requiring network expansion and upgrade and new system tools to manage the intermittency of wind. This is driving down load factors, forcing sub optimum operation at part load and greatly increasing plant starts. Such an operating regime, made worse by (largely opaque) grid constraints and operational workarounds, provides much reduced cash flows over a shorter asset life and will severely affect asset valuations. Existing revenue streams are inadequate to compensate for this. Moreover, the system value of generators ramping up or down quickly, synchronising on time, or starting up at short notice is not reflected commercially and is arguably disincentivised. This is because under the current regime in our view more flexible plants have a greater likelihood of being cycled which causes their SRMC to increase and thus further increases the likelihood of being cycled. In addition a cycled plant typically has a lower availability because of the onerous nature of cycling and the stresses it puts on plant operation. An incentive compatible solution to this problem would be to reward generators for being flexible through the ancillary services mechanism.

Rather than radically reform the ancillary services regime VPE has previously argued that an evolutionary approach is more appropriate in line with the actual trajectory of renewables and the learnings from a measured approach. Along these lines, we have suggested that new ancillary services should focus on rewarding generators for the system value they could potentially provide in ramping up or down quickly; synchronising on time; starting up at short notice; operating at low minimum generation; operating CCGTs in OCGT mode; and providing additional reserve capability beyond contract values. We still consider this a sensible way forward and would commend the work that has been done to date in this area following the system operator invitation to all existing AS service providers in November 2010 to discuss their plant capabilities.

In terms of future ancillary services developments, VPE looks forward to participating in the industry workshop flagged in the consultation paper and would particularly stress at this stage the need for:

- Longer term ancillary services contracts (of at least 10 years);
- Treating the ancillary services regime, the capacity payments mechanism, and the energy market as completely separate and distinct[1].
- Some mechanism to compensate generators for loss of ancillary services revenues when constrained off.

[1] A recent SEMC consultation proposed a possible interpretation of the BCoP to mandate generators to deduct 'variable AS benefits' from their offer submissions. In our view this undermines what Eirgrid is trying to achieve in placing more emphasis on AS revenue streams. Furthermore, the importance of a clear, transparent and robust price formation mechanism for liquid and efficient markets is well known. Bidding of AS in commercial offers would add considerable complexity and opacity to bids and would be very difficult, if not impossible, to adequately police.

- An appropriate risk / reward trade-off between AS payments and charges.

All of the above will be necessary if ancillary services revenues are to feature more strongly in performance and investment decisions.

Having made these general points the remainder of this response provides more specific comments. We endeavour, where possible, to align our comments with the sections and sub-sections of the respective consultation papers, as requested.

Ancillary services:

1. VPE would welcome confirmation that ancillary services payments will be available to windfarms if they can demonstrate provision of any of the services.

2. VPE notes from section 2.2 that new ancillary services will be paid for based on their utilisation and not their availability. The basis for this is broadly understandable but it does underline the importance of putting in place some mechanism going forward to compensate generators for lost AS revenues when constrained off.

3. In response to section 4.1 VPE is in favour of optimising the AS allowance providing that sufficient funds are made available in both jurisdictions to offer the services necessary to incentive desired performance and to compensate generators for the onerous operating conditions associated with cycling.

4. Referring to section 4.2 VPE would concur that reporting the level of services contracted with each AS Service Provider would breach confidentiality entitlements and obligations in the AS agreement.

Other system charges:

1. VPE welcomes the changes proposed in section 1.3.2 to prevent GPI double charging when declaring services in a positive direction.

2. VPE welcomes the changes proposed in 1.3.3 and 1.3.4 relating to loading and de-loading GPI respectively.

3. In relation to section 3.2 VPE maintains that revenues generated from other system charges should be re-cycled back into the AS pot as this will ultimately benefit consumers by strengthening performance incentives and reducing dispatch balancing costs.

4. VPE is not convinced it is necessary to implement the significant hike in SND charges from €40/MWh to €70/MWh from October 2011 and would suggest that existing rates be maintained for another year, especially given the delayed implementation of HAS arrangements which meant that the original phased increase in SND rates could not be fully adhered to.

Please do not hesitate to contact me if you would like to discuss this response in further detail.

Yours sincerely

K Hannafin

Kevin Hannafin
Regulation Manager

Risto Paldanius
Business Development Director

Ms Vivienne Price, SONI
Mr David Carroll, EirGrid

Dear Ms Price and Mr Carroll,

On behalf of Wärtsilä Corporation, I welcome the opportunity to participate in the Harmonised Ancillary Services Consultation launched by EirGrid and SONI. As providers of innovative power generation technologies on a global basis, we are keen to engage directly on the issues on which we feel most strongly, in particular the demand for and provision of efficient flexibility on all timescales.

Yours sincerely,

Wärtsilä Corporation
John Stenbergin ranta 2
PO Box 196
FI-00531 Helsinki
Finland

Tel. +358 (0)10 709 0000
Fax +358 (0)10 709 5701

Response to Harmonised Ancillary Services Consultation

Tariff Year
1st October 2011 to 30th September 2012

A response to EirGrid and SONI

Wärtsilä Corporation
John Stenbergin ranta 2
FI-00530 Helsinki
Finland

May 2011

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The contact for queries and questions on our response is:

Risto Paldanius

Business Development Director

Advisory Services, Power Plants

Tel. +358 10 709 5437

Mobile +358 40 501 3669

risto.paldanius@wartsila.com

1 OVERVIEW OF WÄRTSILÄ AND OUR SOLUTIONS

1.1 Overview

1.1.1 Wärtsilä is a global leader in complete lifecycle power solutions for the marine and energy markets. By emphasising technological innovation and total efficiency, we maximise the environmental and economic performance of the power plants and vessels of our customers.

1.1.2 In 2010, Wärtsilä's net sales totalled EUR 4.6 billion. We have more than 17,500 employees, operations in 160 locations in 70 countries around the world, and we are listed on the NASDAQ OMX Helsinki, Finland. We have 3 main business areas:

- **POWER PLANTS** - Wärtsilä is a leading supplier of flexible power plants for the power generation markets.
- **SERVICES** - Wärtsilä supports its customers throughout the lifecycle of their installations by optimising efficiency and performance. We are committed to providing high quality, expert support as well as availability of services wherever our customers are - in the most environmentally sound way.
- **SHIP POWER** - Wärtsilä enhances the business of its customers by providing integrated systems, solutions, and products that are efficient, economically sound, and environmentally sustainable for the marine industry.

1.2 Wärtsilä Power Plants

1.2.1 Wärtsilä is a leading supplier of power plants. Our technology enables a global transition to a more sustainable and modern energy infrastructure. We aim to provide superior value to our customers by offering Smart Power Generation which comprises a number of key characteristics, including:

- **Agility of dispatch** reflecting superior starting performance and quick shut down, fast ramp rates, high availability and starting reliability
- **High efficiency**
- **Wide economic load range** ie high sustained efficiency across load levels
- **Low capital cost**
- **Optimal plant location and size** including ability to locate inside distribution networks and major load centres with a low plant footprint
- **Communication with a smart grid** including automatic response, start and stop
- **Low environmental impact** including low CO_2 and other emissions even when ramping and on part load
- **Fuel flexibility** reflecting multi-fuel capabilities

2 RESPONSES TO CONSULTATION

2.1 REDUCED TIME TO SYNCHRONISE

2.1.1 The power sector is facing a lot of changes and challenges and grid operation is in need of new measures for balancing power production and consumption. Regarding section 2.2.1 of the consultation paper, it is the view of Wärtsilä that in order to accommodate the increasing amounts of non-dispatchable renewable power generation, i.e. wind and solar, in the power grid of tomorrow, the flexibility of dispatchable power generation will need to improve. Time to Synchronise (TtS) is a very important indicator of the flexibility of a technology, and correlates strongly with the start-up time, i.e. time required to reach required load after dispatch order. As such, Wärtsilä agrees that improvements in Time to Synchronise should be incentivised on a system level.

2.1.2 Moreover, it is Wärtsilä's view that this incentive should be built in such a manner that it is directly proportional to the reduction in TtS. For example, a 60 minute TtS should receive a higher reward than a TtS of 90 minutes. This way, the Ancillary Service tariff would be structured so as not to favour one technology over another, but rather incentivise the technology best suited to offer better performance in terms of TtS, whichever technology that might be.

2.1.3 Finally, while Wärtsilä supports the general approach of this Ancillary Service model, we see it necessary to point out that the decision to not include an availability-based component in the tariff structure should not be taken lightly. It is important, for as long as there remain uncertainties regarding the complexities imposed by tomorrow's power grid, to not limit the variety of actions that can be taken to tackle said complexities. The possibility that new kinds of capacity may be required to balance the grid should be acknowledged. An utilisation-only payment structure might prove insufficient in attracting investment into such new capacity. Thus, in order to provide a maximal variety of tools for use in coping with future requirements, Wärtsilä urges the TSOs to carefully examine the possibility of including an availability-based component in this AS tariff.

2.2 FLEXIBLE MULTIMODE OPERATION

2.2.1 With respect to section 2.2.2 of the consultation paper, Wärtsilä's comments are as follows. Firstly, while it is clear that more flexibility is required to cope with the inherent intermittency in wind and solar power generation, operating Combined Cycle Gas Turbine (CCGT) power plants in Open Cycle (OCGT) mode might not be the optimal way to gain said flexibility. Rather, on the system level, a wider range of technologies should be considered. Moreover, it should be acknowledged that there are technologies that do not incur any additional fuel costs and/or maintenance costs for offering increased flexibility and that such technologies are available today. For example, Wärtsilä's FlexiCycle plants can accommodate very rapid changes in demand (see Figure 1, below).

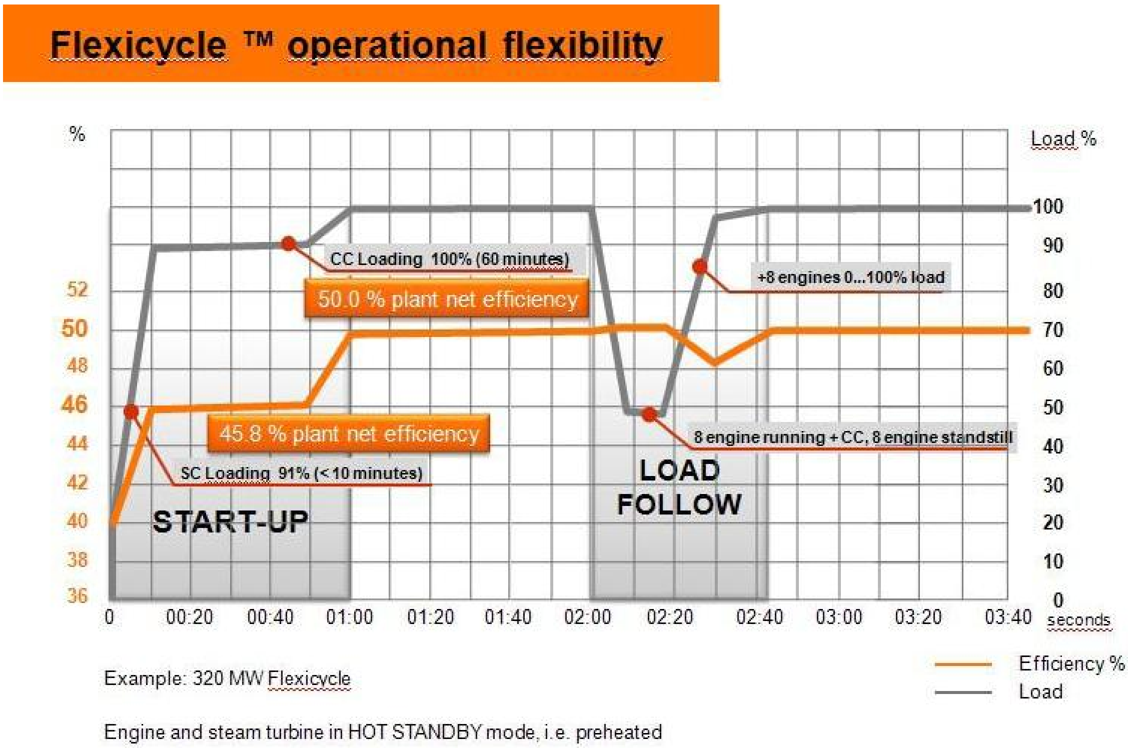


Figure 1. Start-up and load following performance of Wärtsilä FlexiCycle™ plant.

2.2.2 Secondly, Wärtsilä is of the opinion that an Ancillary Service tariff should not be technology-specific. Rather, if more flexibility is required, a measure for flexibility should be developed – such as ramp rate, up or down, in MW/min – and then incentivised in a technology-agnostic manner. In other words, flexibility should be rewarded regardless of the technology, and not just for owners of CCGTs willing to operate in OC mode.

2.3 LOWER MINIMUM GENERATION

2.3.1 Regarding section 2.2.3 of the consultation paper, again, it is Wärtsilä's view that incentive structures should be approached from a technology-agnostic point of view. Rather than trying to incentivise a unit of a given technology to operate in a non-optimal manner, incentives should reward the required performance attributes regardless of technology. In this case, the TSOs perceive as benefits a lower risk of failure to synchronise, and a quicker ramp-up from a hot state rather than a cold or warm state. However, there are technologies that provide a very high reliability and quick ramp-ups even from a cold state. To mention but one, a multi-unit power plant based on combustion engine technology can offer greater reliability than a single large generating unit. Moreover, combustion engines also exhibit excellent start-up characteristics, being able to synchronize in 30 seconds and ramp up to full load in 5 minutes of the dispatch order, respectively. Furthermore, combustion engines do not incur any additional costs for shutting down and starting up, and can start up again 5 minutes after having been shut down, and, if needed, can even run at a minimum load of less than 5% of net plant capacity.

2.3.2 Secondly, it is Wärtsilä's opinion that environmental aspects should also be carefully examined before implementing this AS tariff. Many technologies' efficiency suffers greatly in part-load operation, and especially so when operating at minimum load. When efficiency decreases, fuel consumption increases relative to output. Consequently, emissions relative to output increase as well, and sometimes considerably.

2.3.3 To summarise, it is the view of Wärtsilä, that no incentives are required to reduce minimum generation, as there are sufficient market reasons. It should be the power producers' decision whether to shut a unit down or operate on minimum load and bear the additional fuel cost and emissions. Moreover, technologies exist that can provide very high reliability and quick ramp-ups without resorting to minimum load operation.

2.4 SYNCHRONOUS COMPENSATION

2.4.1 Wärtsilä do not have specific views regarding section 2.2.4 of the consultation paper.

2.5 OTHER SECTIONS

2.5.1 Regarding sections 3.2, 3.3, 4.1, and 4.2 of the consultation paper, Wärtsilä do not have specific views on these subjects.

3 *APPENDIX – OVERVIEW OF WÄRTSILÄ POWER PLANTS*

3.1.1 Wärtsilä Power Plants is a leading supplier of flexible power plants. We aim to provide superior value to our customers by offering decentralised, flexible, efficient and environmentally advanced energy solutions. Our technology enables a global transition to a more sustainable and modern energy infrastructure and our solutions are modular, tried and tested power plants.

3.1.2 Our energy solutions offer a unique combination of:

- Energy efficiency
- Fuel flexibility
- Operational flexibility

3.1.3 We offer our customers competitive and reliable solutions that deliver high efficiency. Our power plants engines can run on liquid fuels, a wide range of gases and renewable fuels. Most of our products have multifuel capabilities and all can be converted from one fuel to another. Furthermore, the operational flexibility of our products enables high system efficiency, flexibility in operations with varying loads, low water consumption, as well as the possibility to carry out construction in phases according to the customer's needs. These key features, combined with the full lifecycle support we offer, create the basis for Wärtsilä's strong position within the Power Plants market.

3.1.4 With gas strengthening its potential to be the fuel of the future, our focus is on developing competitive solutions for the gas market. This focus supports our growth ambitions and enables a stronger presence in the broader markets.

3.1.5 Our business is divided into four customer segments

Flexible baseload

3.1.6 Wärtsilä supplies flexible baseload power plants mainly to developing markets, islands, and remote locations. Energy consumption growth in these markets is driving a steadily increasing demand for new power generation solutions. Wärtsilä's customers in this segment are mainly Utilities and Independent Power Producers (IPP). Customer needs typically include competitive lifecycle costs, reliability, world-class product quality and fuel and operational flexibility, as well as operations & management services. Wärtsilä is in a strong position to cater to these needs. Flexible baseload power plants are run on both liquid fuels and gas.

Grid stability and peaking

3.1.7 Wärtsilä's grid stabilising power plants enable the growth of energy solutions based on wind, solar and hydro power. We offer dynamic solutions used for systems support, reserve power, peaking needs, and in regions with rapidly growing wind power capacity. Customers in this segment are mainly Utilities and IPP's. The strengths of Wärtsilä's products include rapid start and ramp up to full speed, the ability to operate at varying loads, competitive electricity generation and capacity costs, as well as 24/7 service. Grid stability and peaking plants are mainly fuelled by gas.

Industrial self-generation

3.1.8 Wärtsilä provides power plant solutions to industrial manufacturers of goods in industries such as cement production, mining, and textiles. Customers are mainly private companies and reliability, reduced energy costs, and independence from the grid are among the key factors in their decision making. Power plants in this segment are run on either gas or liquid fuel, depending on fuel availability.

Solutions for the oil & gas industry

3.1.9 Wärtsilä provides engines for mechanical drive, gas compression stations, and for field power and pumping stations to the oil and gas industry. Typical customer needs include maximum running time, reliability, long term engineering support and 24/7 service. The solutions we offer run on natural gas, associated gas and crude oil.

Power Plants and sustainability

3.1.10 The world is currently seeking more sustainable solutions for energy infrastructure. This development is driven by climate policies, energy security and economics. Carbon intensive energy sources are being replaced by low carbon fuels, such as natural gas and renewable solutions. Energy savings and efficiency improvements are being encouraged, and even legally enforced, at every level.

3.1.11 Wärtsilä's energy solutions offer a unique combination of flexibility, high efficiency, and low emissions. Many different fuels, including bio-fuels, can be used efficiently, which helps in reducing greenhouse gas emissions. The flexibility of Wärtsilä's solutions enables the development of a reliable energy infrastructure, wherein most of the sustainable characteristics are already known.

Efficiency development

3.1.12 We continuously seek improvements in the present engine portfolio, and are developing new engine concepts for the future. As a power plant contractor, we develop our power plants in parallel with the engines. This enables us to optimise both the performance and the reliability of our power plant offering. We offer high efficiency, single cycle solutions and focus on improving efficiency even further through the use of e.g. combined cycle solutions. Power plant net efficiency can be further improved by plant design and by optimising internal power consumption. Such solutions minimise not only fuel and water consumption, but also the emissions per unit of energy, thereby providing major environmental benefits.

Flexibility

3.1.13 Flexibility is one of the main features of Wärtsilä's power plant solutions. The high modularity of our products makes it easy for our customers to construct an optimally sized plant, and to later expand its size to meet future needs. Fuel flexibility has many advantages for our customers, notably the lowering of energy production costs by using low cost fuels, minimising CO2 emissions, and the ability to convert from one fuel to another based on fuel availability.

3.1.14 The unique operational flexibility of our products comprises:

- Very fast plant starts and stops
- High ramp rates
- High part-load efficiency
- A broad load range

3.1.15 Frequent starting and stopping does not affect the operational costs of the plant. This is unique, no other competing technology offers the same

Towards an optimally sustainable power system

3.1.16 The power generation system of the future will contain a significant percentage of wind power capacity. Such capacity is non-dispatchable and variable, which creates potential for other power units to balance the system. Wärtsilä is in a good position to meet this need, as the operational flexibility of our products makes them easily adaptable to the needs of the grid.

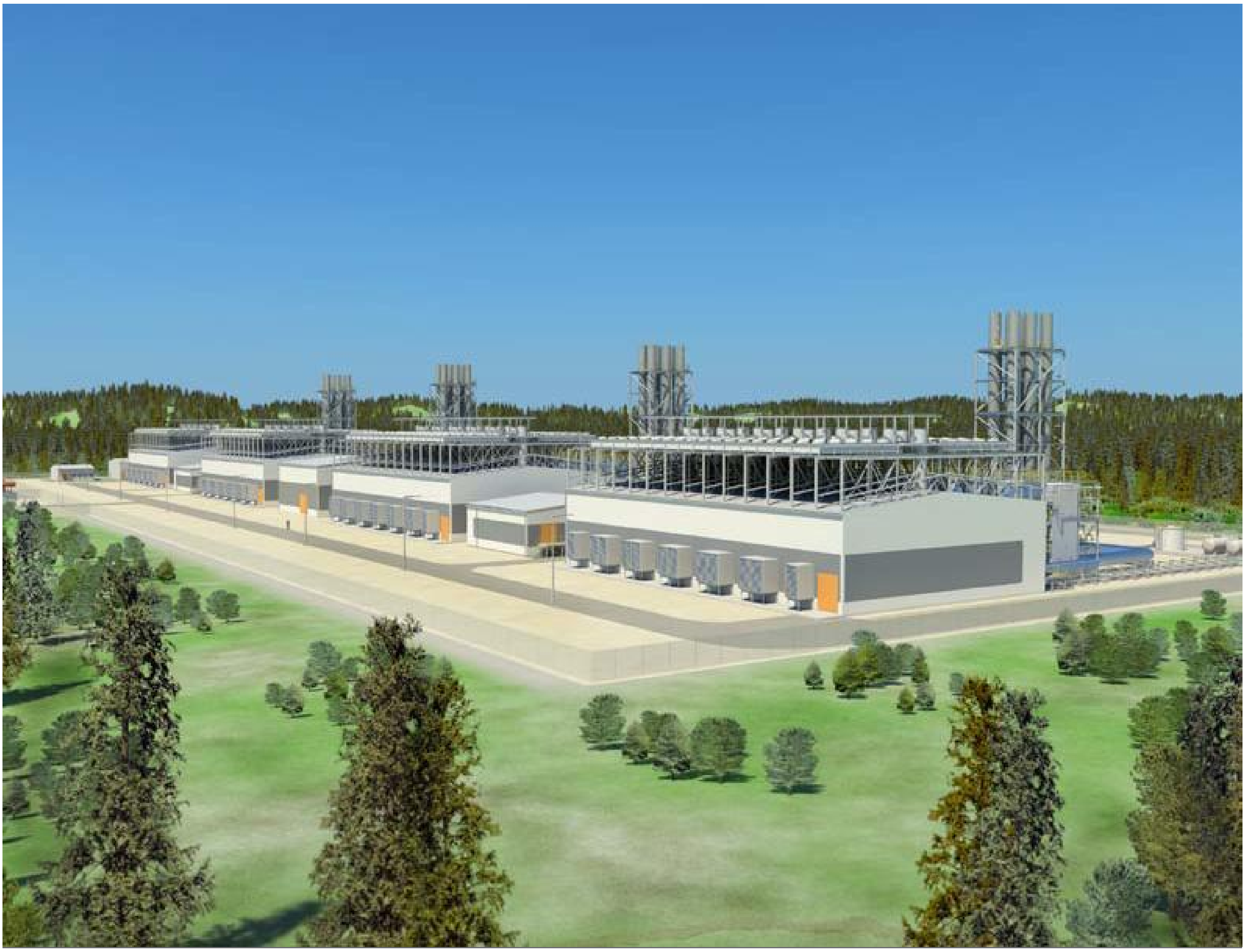
Reducing emissions

3.1.17 Wärtsilä places high priority on developing diverse and flexible emission reduction techniques. Since emission requirements and the fuels used differ widely, a comprehensive range of products is required in order to offer competitive solutions.

3.1.18 Mitigating the effects of climate change will call for substantial reductions in greenhouse gases (GHG). We believe that the importance of natural gas will increase in the future. Consequently, the multi-fuel capability of our power plant solutions becomes an increasingly significant competitive advantage, as it enables the utilisation of all liquid and gaseous bio-fuels that may become available on a wider scale. Wärtsilä focuses on developing decentralised energy solutions that emit fewer GHG emissions.

4 *APPENDIX – WHITE PAPER: COMBUSTION ENGINE POWER PLANTS*

4.1.1 Please see attachment.



White paper
Combustion engine power plants

Niklas Haga
General Manager, Marketing
Marketing & Business Development
Power Plants

White paper – Combustion engine power plants

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This paper will give an insight into the many unique features that modern combustion engine power plants offer, while enabling valuable flexibility for power generation systems.

1. Modern combustion engines

Today's modern combustion engines are excellently suited for various stationary power generation applications. They cover a wide capacity range, and have the highest simple cycle efficiency in the industry. At the lower end of the range, the power plant can consist of only one generating set, while larger plants can consist of tens of units and have a total output of several hundred megawatts. The largest power stations delivered to date have electrical outputs in excess of 300 MW. Power plants based on combustion engines can, however, be even bigger, simply by adding more generating sets. Today, even 500 MW plants are competitive in applications where flexibility and high efficiency are needed.

A 500 MW Flexicycle™ power plant based on 24 Wärtsilä 18V50SG units in combined cycle.

The combustion engines that are commonly used in power plants are typically based on medium-speed engine technology. The simple cycle outputs of these engines typically range from 1 to 23 MW per unit. Medium-speed engines run at between 300 to 1000 rpm, and the engine and the generator run at the same speed so there is there is no need for a gearbox. The engines are designed according to two different operating process principles, giving them somewhat different characteristics and making them suitable to run on either gaseous or liquid fuels.

View inside a combustion engine power plant engine hall.

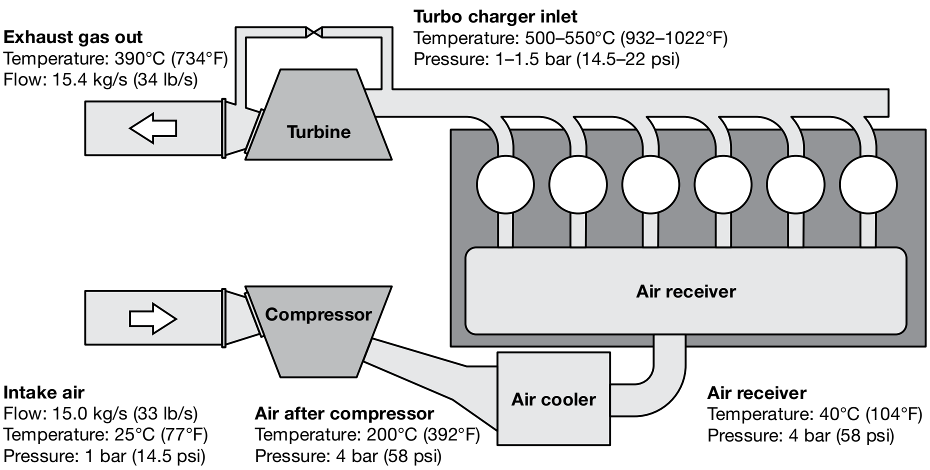
Modern computer controlled combustion engines have many technological advantages over other technologies used for power generation. The following chapter will highlight the most important advantages.

Simple cycle efficiency

The combustion engine's high efficiency is enabled by the characteristics of the combustion process. Combustion takes place in the cylinders at high pressure and high temperature. Modern engines operate at up to 200 bar (2900 PSI) peak cylinder pressure during every combustion cycle. The combustion temperature is optimized for high efficiency and low NO_X emissions.

In an idealised thermodynamic process, a combustion engine would be able to achieve an efficiency rating in excess of 60%. As engine development proceeds, various losses and deviations from the idealised process are minimized, and today modern combustion engines reach 47.5% simple cycle efficiency (heat rate 7187 Btu/kWh), measured at generator terminals.

Modern combustion engines use turbo chargers to increase the output and improve efficiency. Turbo chargers typically operate at up to 20,000 rpm.

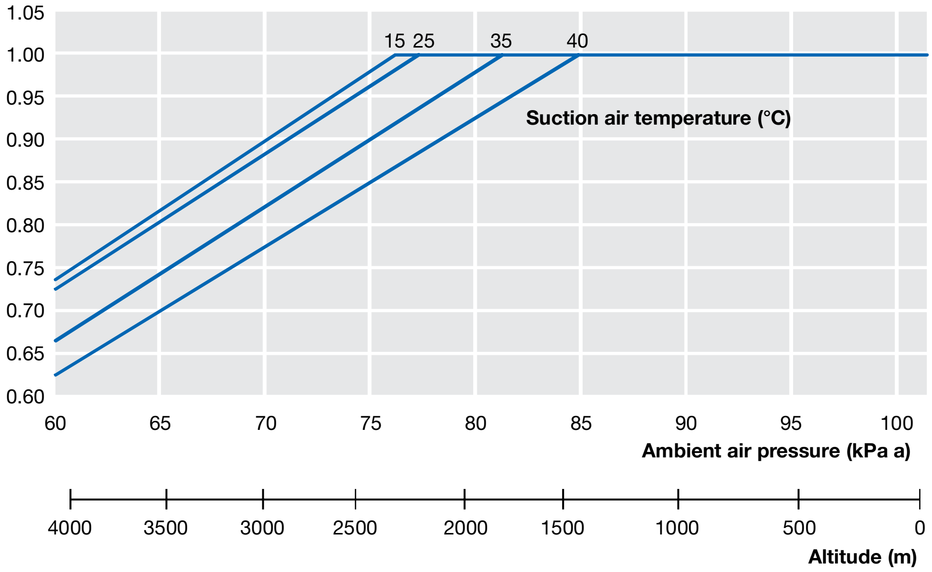


Typical temperatures, pressures and mass flows from a 10 MW combustion engine.

Influence of ambient conditions

A clear advantage of combustion engine technology is the minimal impact of ambient conditions on plant performance and functionality. Turbo charging and charge air cooling enable the combustion engine power plant´s high electrical efficiency to be maintained at part load.

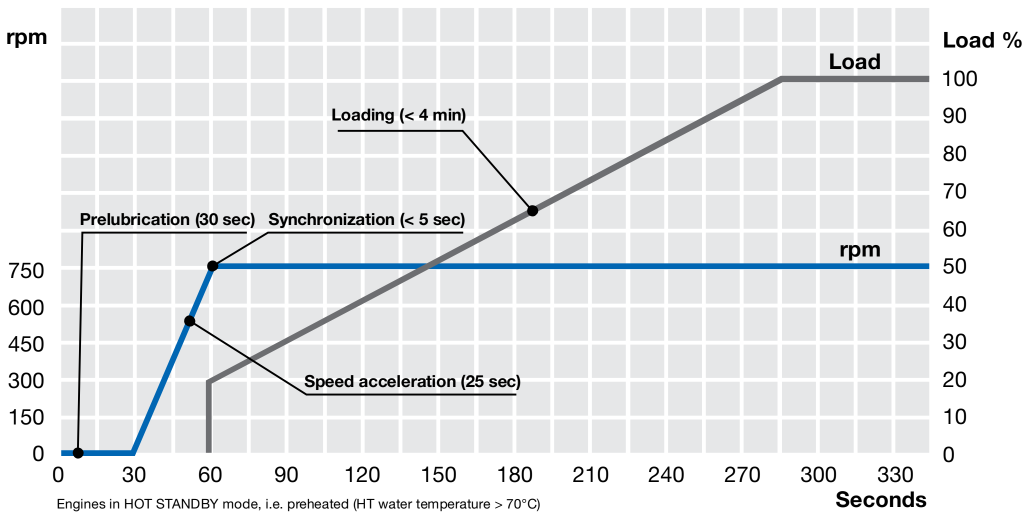
The influence of ambient conditions, temperature and high altitude have no effect on the efficiency and electrical output. Minor derating occurs in extreme conditions, such as temperatures above 40°C (104°F) or an elevation of more than 2000 meters (6562 ft) above sea level. This means that the power and high efficiency are available, when needed, on the hottest summer days.



Derating due to high altitude or high air temperature for a 10 MW gas fired combustion engine.

Frequent fast starts and stops

Modern combustion engines are capable of repeated, fast starts and stops. Pre-heated oil fired combustion engines can be synchronized in 30 seconds and ramp up to full output in 3 minutes. The same procedure takes 5 minutes for gas engines.



A gas fired combustion engine’s start and ramp up time.

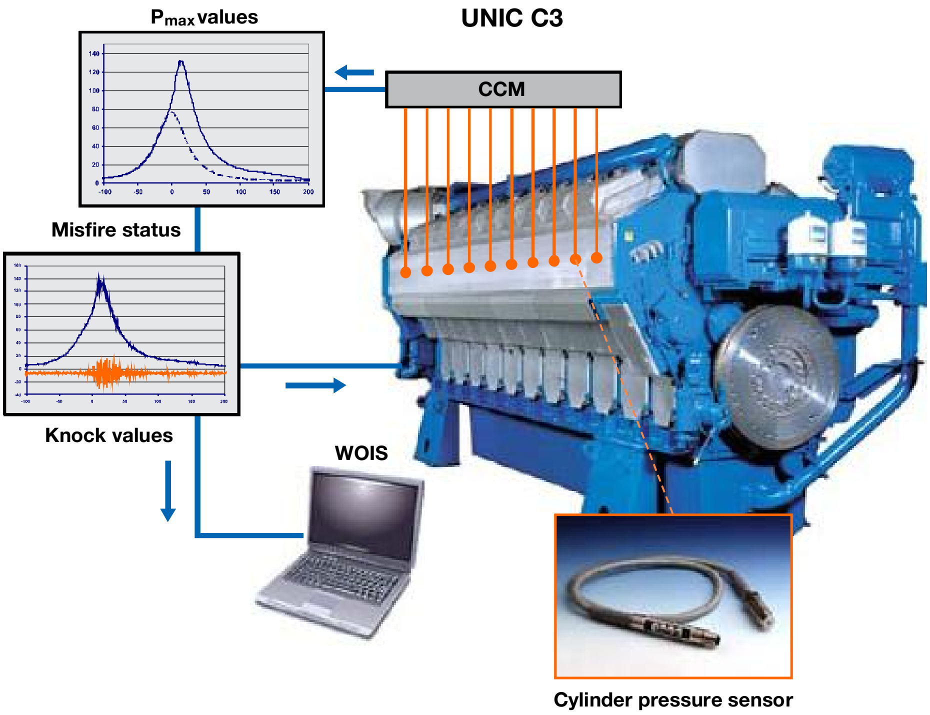
Water consumption

Combustion engine power plants equipped with a closed loop cooling system using radiators, consume a negligible amount of water. This allows the power plants to be located away from the coast, either within a load centre, or out in a desert. When the plant is located at a coastal location, or on a barge, sea water cooling can be used.

Combustion engines, gas operation

Modern gas fired combustion engines are designed to operate on natural gas (NG) or associated gas (AG), and are able to operate on low pressure gas. A gas pressure of just 5 bar(a) (73 PSI) is required, enabling the power plant to be located even where the pipeline gas pressure is low.

In modern lean-burn gas engines, natural gas and air are pre-mixed before entering the cylinders. The optimal air to fuel ratio (lambda) of around 2.2, is the key to controlling the combustion temperature, which enables high efficiency and minimal NO_X emissions. The lean air to fuel ratio is achieved by pressurising air with turbo chargers to around 3 bar, after which the air is intercooled before being fed to the cylinders for combustion. The charge air pressure is controlled with a waste gate valve to match different ambient conditions.



Modern combustion engines are equipped with computerized control systems.

Modern gas fired engines are controlled using sophisticated computerised combustion control systems. The control system continuously monitors engine parameters, such as load, speed, cylinder exhaust gas temperature, and cylinder pressure. This enables the control system to detect detonation and misfiring, and to continuously adjust the lambda value and ignition timing to be optimal for each individual cylinder on every cycle. The control system adjusts the charge air pressure and cylinder specific gas control valves so that the lambda value is kept at the desired level.

Igniting the lean air fuel mixture requires high energy. Combustion engines using gas as the only fuel use spark plugs, located in a pre chamber, to ignite the air fuel mixture.

Combustion engines, dual fuel operation

Dual fuel combustion engines use a self igniting pilot fuel to ignite the air fuel mixture. The pilot fuel quantity is only approximately 1% of the total fuel energy input at full engine load. Dual fuel combustion engines can operate on a wide variety of fuels, including light fuel oil (LFO) and heavy fuel oil (HFO). The engines can transfer from gas to liquid fuel oil operation, or vice versa. This can be done at any load, instantaneously and automatically, for example in the event of an interruption to the gas supply.

The Sangachal power plant in Azerbaijan has a total output of 308 MW and consists of 18 Wärtsilä 18V50DF engines. The power plant uses natural gas when available, but can switch over to using HFO or LFO when needed.

Combustion engines, liquid fuel operation

Oil fired combustion engines operate according to the compression ignition process. The fuel is instantly ignited as a result of the high temperature produced by the compression, and thus there is no need for an external ignition source.

The traditional fuel for oil fired combustion engines is LFO. Oil fired engines are also able to operate on HFO, crude oil (CRO), fuel water emulsions (FEW) and liquid biofuels (LBF) with minor on-site pre-treatment. Even poorer fuel qualities, e.g. refinery residuals, can be used.

Oil fired engines can be converted to operate on gas, for example, in cases where a gas infrastructure becomes available at a later point in time.

Low and controllable emissions

Natural gas fired engines typically generate lower carbon dioxide (CO_2) emissions than oil and coal plants, due to the lower carbon content per fuel energy input and the high engine efficiency. Gas operation produces fewer nitrogen oxide (NO_X) emissions than liquid fuel operation. The engines can be optimized to achieve very low NO_X levels of a maximum of 45 ppm vol, dry, at 15% O_2. Tuning the engine is a balance between NO_X emissions and having the highest possible efficiency. Similar efficiency optimized engines reach NO_X levels of a maximum of 90 ppm vol, dry, at 15% O_2. The NO_X level can be reduced to meet any environmental requirements by installing SCR (selective catalytic reduction) systems.

The Humboldt power plant, located in Eureka, California, consists of 10 Wärtsilä 18V50DF gas engines and has a total output of 162 MW. The dual fuel (DF) engines are able to operate on light fuel oil as back-up. The plant is equipped with SCRs and is capable of meeting the strict Californian emission requirements in both gas and liquid fuel mode.

The burning of clean natural gas produces insignificant levels of sulphur dioxide (SO_2) and particulate matter (PM) emissions.

Today there are several technologies available for controlling combustion engine exhaust gas emissions. All emissions requirements can be met by installing secondary emission control equipment. The need to install equipment for emissions reduction is highly dependent on local regulations, the type of engine technology, and the fuel quality used. With SCR technology NO_X levels of 5 ppm, vol, dry at 15% O_2 can be attained.

Maintenance of combustion engines

The maintenance of combustion engines is today easy, and most routine inspections and maintenance measures can be quickly performed by operating personnel while the engine is in operation.

Proper maintenance ensures high reliability and availability of the power plant. Operational statistics prove that power plants achieve a plant availability of 95%, plant reliability of 97%, and starting reliability of 99%. The highest availability numbers are reached with OEM's operation and management agreements.

Inspections can easily be carried out by the power plant crew and the OEM's technical advisor. Standard workshop tools are typically sufficient for inspections.

For combustion engines there is no equivalent operating hours (EOH) calculation. The maintenance schedule is not affected by frequent starts and stops, fuel, or trips as modern combustion engines have the capability to stop and start without limitations or maintenance impact, while at the same time reducing emissions and fuel consumption.

The condition of modern combustion engines can be monitored continuously by a condition based maintenance system to extend inspection intervals.

The hours presented below are thus the actual fired hours of the engine.

Operation hours	Event	Estimated duration
Routine checks	Checking of filters, lubricating oil, cooling water	During operation
8000 h	Minor inspection	2 days
12 000 h	Minor inspection	3 days
16 000 h	Intermediate inspection (cylinder head & bearings)	9 days
24 000 h	Minor inspection	4 days
32 000 h	Intermediate inspection (connecting rod screw change)	10 days
48 000 h	Major inspection (crank shaft inspection)	10 days

Typical inspection schedule, two 12 hour shifts (example).

Part	Repair interval (h)	Replacement interval (h)
Piston (piston rings)	16 000 – 24 000	60 000 – 100 000 (16 000 – 24 000)
Cylinder liner & head	16 000 – 24 000	60 000 – 100 000
Inlet valve	16 000 – 24 000	32 000
Exhaust valve	16 000 – 24 000	16 000 – 24 000
Bearings	16 000 – 24 000	16 000 – 32 000
Gas valves	8 000	16 000
Pre chamber	16 000 – 24 000	32 000 – 48 000

The major component repair and replacement intervals for combustion engines (example).

2. Features of combustion engine power plants

Combustion engine power plant solutions have many unique features compared to power plants based on other technologies.

Flexible plant sizes

Investments in combustion engine power plants can easily be made in several steps. There are several sizes of engine generating sets available. The number of units can be chosen to match the needed power, see chart below.

		Number of units (CC = Combined Cycle)					
	Type	1	6	16	16+CC	24	24+CC
Gas engines Output in MW	Wärtsilä 20V34SG	9.7	58	155	169	233	253
	Wärtsilä 18V50SG	18.5	111	296	322	444	486
Liquid fuel engines Output in MW	Wärtsilä 20V32	8.9	53	142	155	214	233
	Wärtsilä 20V46F	22.4	134	358	391	538	586

Examples of power plant configurations based on different numbers of engines and the same with combined cycle. Outputs in MW.

The initial investment can, for example, be for 6 units having an output of 18 MWe per unit. The decision to invest in additional units can be made at any time later. Heat recovery steam generators (HRSG) and steam turbines can also be installed later to close the cycle for combined cycle application.

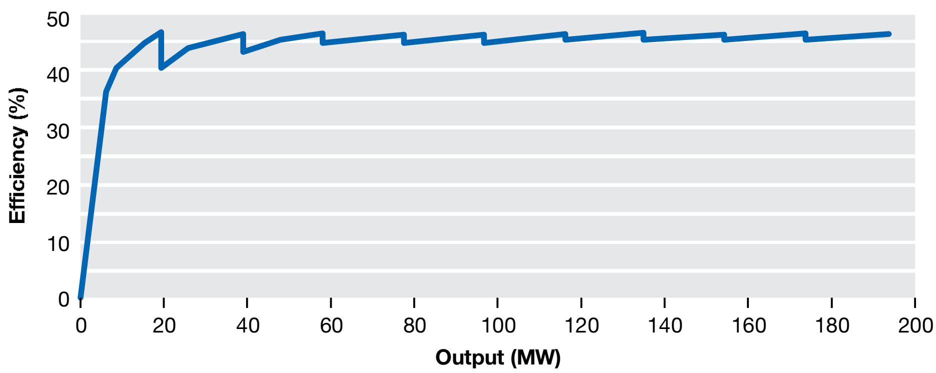
A 322 MW Power Plant based on 16 Wärtsilä 50SG engines and steam turbine combined cycle (Flexicycle), 296 MW from engines and 26 MW from steam turbine. The investment and construction can be made in several steps and the combined cycle can be added later on. In this example there is space reserved in the engine hall for two additional units.

The modular concept also enables easy and repeatable installation work.

Combustion engine power plants can be architecturally designed to blend into urban areas.

Multiple independent units

As power plants typically consist of several generating sets, the excellent fuel efficiency can be maintained across a wide load range also at part load operation. The plant can be operated at all loads with almost the same efficiency.

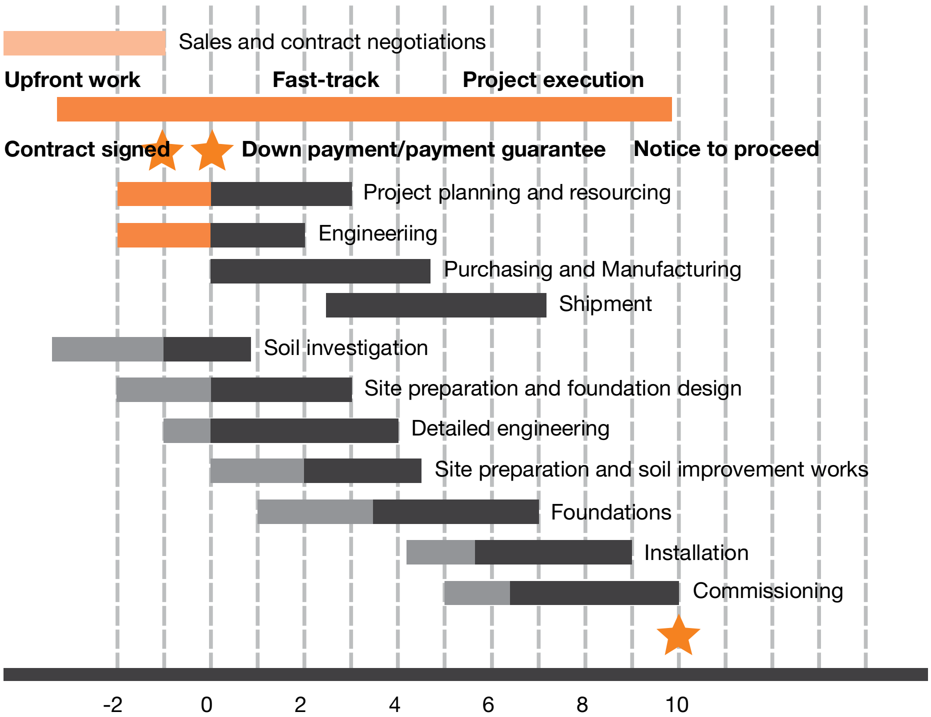


Power plants based on multiple units achieve high efficiency throughout the entire load range.

If operating one or several generating units at part load, there is an in-built spinning reserve in the load range from 30..100% for each unit.

Start-up, synchronisation and loading
Fast start-up, synchronisation, and quick loading are valuable benefits for power plant owners. Quick synchronization (30 seconds) is especially valuable for the grid operator, as these plants are the first to synchronise when an imbalance between supply and demand begins to occur. System operators benefit from the possibility to support and stabilize the grid in many situations, such as peaking power, reserve power, load following, ancillary services including regulation, spinning and non-spinning reserve, frequency and voltage control, and black-start capability.

Fast track EPC project delivery
Combustion engine power plant construction projects can be executed with fast delivery schedules. EPC (engineering, procurement, construction) power plant construction projects can take as little as 10 months from the notice to proceed to final handing over. As an example, the 102 Dohazari power plant in Bangladesh was delivered in only 10 months.



Example schedule for Fast Track Project.

3. Applications for flexible power plants

Decentralised or distributed, modular combustion engine power plants can be used in a variety of applications from grid stability management, peak and intermediate load, to base load operation. The plants can be located close to the consumption centres, thereby reducing transmission losses. These solutions offer high efficiency in varying ambient conditions, while providing unique operational flexibility.

Grid stability management

Utilities, system operators, and regulators are increasingly faced with the challenge of balancing power systems in an optimal way. Power grids typically see significant load variations during the day and between seasons. The system capacity is typically a mix of power plants dedicated for base load, intermediate load and peak load. Combustion engine power plants are, however, able to handle many functions in power systems, which have traditionally been managed by separate dedicated power plants applying different technologies.

The wide load range, in combination with the high efficiency at different loads and the fast starts and stops, that combustion engine power plants can offer, make them highly valuable assets to a system dispatcher. To date there are more than 1000 Wärtsilä power plants installed operating as grid stability, peaking and stand-by power plants.

Wind enabling

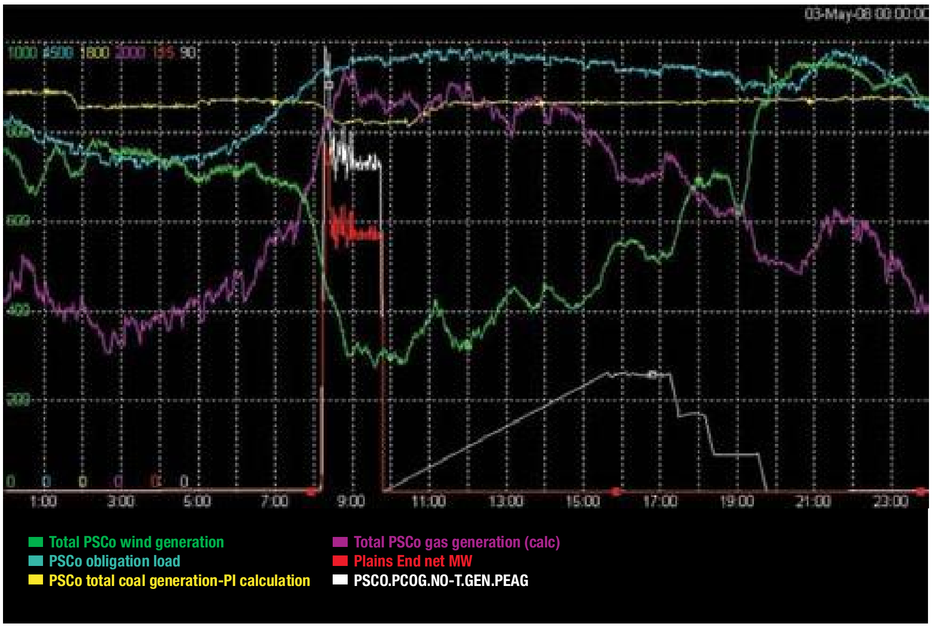
Power grids will see more and more wind power generation in the future. Wind power is, however, similar to solar power, and by nature non-dispatchable. The dynamic features of modern combustion engine power plants are outstandingly well suited to supporting grid systems that require flexibility to cope with daily load fluctuations, or that have a significant installed base of non-dispatchable power.

The Plains End I and II grid stability power plants are located in COLORADO, USA and consist of 20 x Wärtsilä 18V34SG engines and 14 x Wärtsilä 20V34SG engines with a total output of 231 MW. The gas fired power plant was delivered in 2002 and 2008.

Flexible base load

Combustion engine power plants can be optimized for different applications, but the plants are also capable of handling many tasks in a power system. The high simple cycle efficiency and proven reliability make them very suitable for flexible base load operation. The high output and efficiency can be achieved even in the most challenging locations and conditions, including hot climates and high altitudes.

A considerable number of combustion engine power plants are following load profiles that classify them as base load power plants, i.e. running more than 6000 hours per year. More than 1550 Wärtsilä base load plants produce 22300 MWe



A screen shot from the Colorado Dispatch Center, Xcel Energy, USA. The green curve illustrates how wind generation drops from 700 MW to 350 MW during one morning hour. The red and white curves show how gas engine based grid stability power plants are started, providing fast reaction to the change.

of power around the clock in 135 countries around the world. In many cases the plants operate more than 8000 hours per year, through all seasons, in highly varying ambient conditions, and even using very poor fuel qualities.

The Lufussa Pavana III base load power plant is located in Honduras and consists of 16 Wärtsilä 18V46 engines having a total output of 273 MWe.

As an example of their inherent reliability, combustion engines based on the same technology are also powering ships sailing the world's oceans, for which the reliability requirements are obviously high. Their reliability is also a key reason why combustion engines are chosen to drive pumping units for crude oil pipelines and for gas compression applications.

The Lufussa Pavana III base load power plant is located in Honduras and consists of 16 Wärtsilä 18V46 engines having a total output of 273 MWe.

4. The Flexicycle™ power plant

In typical power systems, the base load generation capacity consists of large centralised coal and/or nuclear power plants alongside combined cycle gas turbines (CCGT) with long ramp-up and ramp-down times. Intermediate operation is typically handled by combined cycle gas turbines. The reserve and peaking capacity is based on less efficient smaller generating units that are expensive to operate.

The Flexicycle™ solution combines the advantages of a flexible simple cycle plant, with the superb efficiency of a combined cycle plant, in a unique way. Flexicycle™ power plants can be optimized for different outputs in the 100 to 500 MW range. This power plant solution is based on gas fired combustion engines and a steam turbine combined cycle. Each engine is equipped with a waste heat recovery steam generator. The power plant has one common steam turbine with a condenser. The power plant cooling is typically arranged so that the combustion engines are cooled with closed loop radiators, and the steam cycle with cooling towers.

The Flexicycle™ power plant solution's two-in-one characteristic makes it a very competitive solution for handling a grid system's intermediate load. Depending on the power system's capacity mix, the Flexicycle™ power plant can also be the best choice for base load generation, thanks to the high combined cycle efficiency. In the Flexicycle™ concept, the unique dynamic features of combustion engines are maintained as the combined cycle can be shut on and off individually for each generating set.

Simple cycle mode – superior for ancillary services

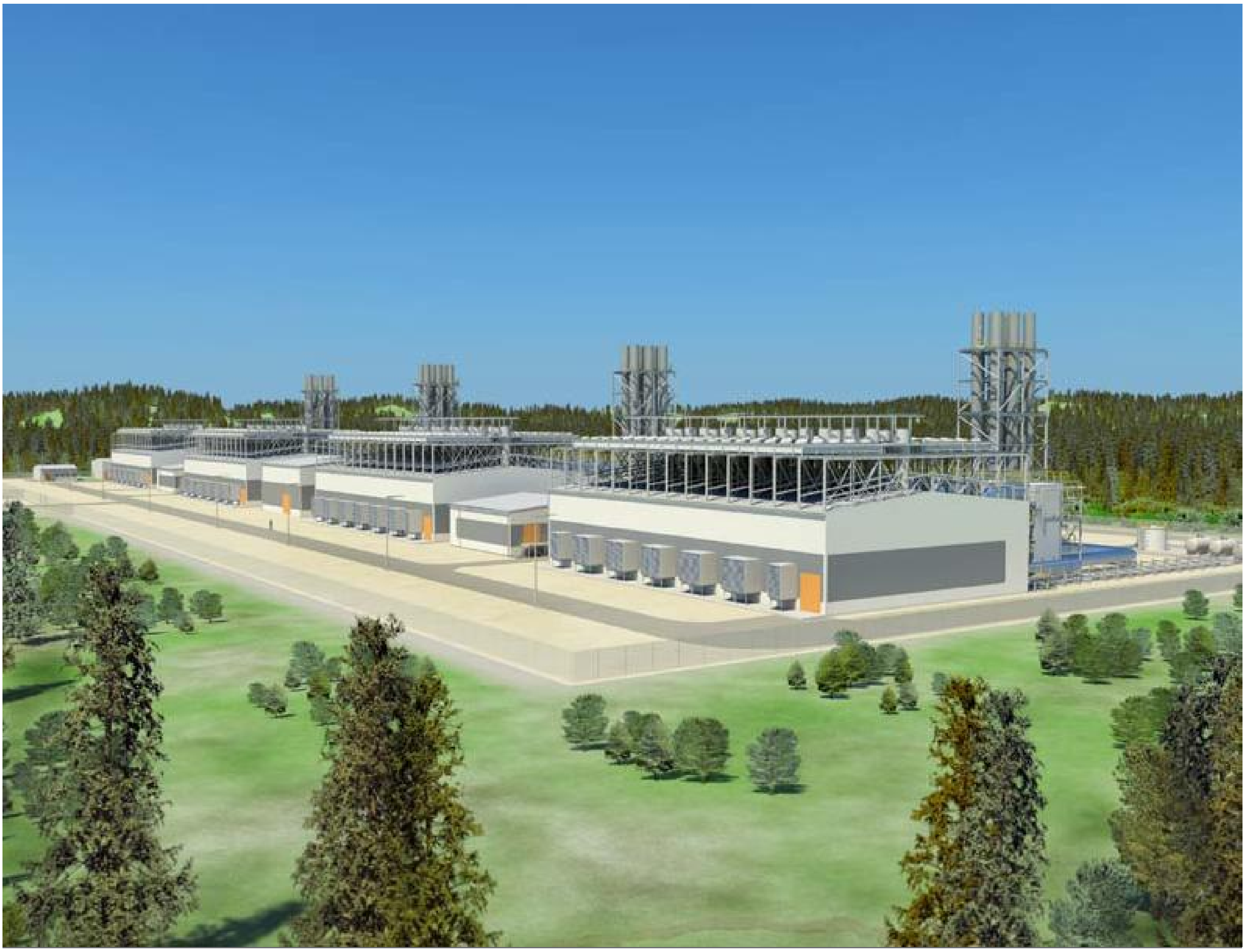
- 10 minutes to full load, 1 minutes to stop
- 45.8 % efficiency, 7860 Btu/kWhe
- Unlimited starting and stopping with no impact on maintenance schedule

Combined cycle mode – for competitive base load power

- 50.0 % efficiency, 6829 Btu/kWhe
- 45 minutes to full efficiency
- Switch back to simple cycle on the run

Efficiencies and heat rates are given as plant net at site conditions.

The 500 MW Flexicycle™ power plant based on 24 Wärtsilä 18V50SG units and a steam turbine combined cycle.



Wärtsilä is a global leader in complete lifecycle power solutions for the marine and energy markets. By emphasising technological innovation and total efficiency, Wärtsilä maximises the environmental and economic performance of the vessels and power plants of its customers. Wärtsilä is listed on the NASDAQ OMX Helsinki, Finland.